Lancaster County Virginia

Comprehensive Plan

Prepared by the
Lancaster County Planning Commission

Adopted by the
Lancaster County Board of Supervisors

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The "Draft Plan" was prepared under the direction of the Lancaster County Planning Commission.

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INTRODUCTION

CY 2024 UPDATE
LANCASTER COUNTY
COMPREHENSIVE PLAN

The Board of Supervisors adopted the current Lancaster County Comprehensive Plan on January 25, 2024. As required by §15.2-2230 of the Code of Virginia, a review was initiated in November 2018. It was widely recognized by government and interested members of the public that the pace of development had increased dramatically since the 2013 review, so an exhaustive overhaul of the current Comprehensive Plan was necessary at this time.

Given the fact that the economy has been thriving since the last update, it was determined that the issues raised during that review are still applicable today. Those issues centered on the following themes:

- Preserve rural character and heritage of the County
- Protect natural resources
- Control the character of development
- Preserve and increase public access to the water and to community facilities
- Seek a greater mix of housing with emphasis on more affordable workforce housing
- Improve the planning process
- Pursue economic development and increase the number of jobs with benefits and higher paying opportunities
- Expand recreational and health care services for young people and working age adults
- Improve educational and training opportunities

With these themes in mind, work began on the update. Chapters 1-6 were reviewed for consistency, currency, and quality of presentation. With the exception of public access to the water and economic development, which required greater attention, there was no attempt to make significant changes to these chapters. These chapters received an extensive review in 2016 by the Virginia Department of Environmental Quality and the requirements of these agencies for a comprehensive plan were met. These chapters were and are intended to set the stage for the last chapter that guides future development.

Chapter 7 was the most significant modification to the existing comprehensive plan during the 2013 update and addressed the following:

- Citizen input not addressed in the previous chapters;
- Clearly designated primary and secondary growth areas;
- Limits of extension of municipal water and wastewater into the County;
- Specific direction for revising, modifying or adding to the Subdivision and Zoning Ordinances.
- Solar Ordinance was implemented.
- Short-Term Rental Ordinance was implemented.
- Lancaster 2035 Committee was created.

Summarizing, the objectives going into this review and update to the Comprehensive Plan were that it would more effectively deal with the changed environment created by a stagnant economy, and would more effectively guide decisions that must be made in the present or near term to achieve long range goals. The resulting vision guiding this update to the comprehensive plan and new or modified ordinances that will flow from it is as follows:

We envision Lancaster County as a highly desirable and economically successful rural region with all age groups represented, well known for its heritage, the arts, water and nature-based recreation facilities, tourism assets and health care communities. We have a vibrant school system which continually pursues excellence as an attraction for young families. The county is known for its focus on family values, a safe living environment, attractive and affordable living venues. It is business-friendly environment where entrepreneurial incentives perpetuate business retention and job creation. Volunteerism is abundant in all aspects of community life.

Lancaster County, a highly desirable place to live, work and play!

CHAPTER 1—BACKGROUND, HISTORY, RECENT DEVELOPMENTS AND TRENDS

A. BACKGROUND

This Comprehensive Plan is a series of related documents for use by Lancaster County to anticipate and deal constructively with the many changes occurring in the community and its immediate surroundings. Its purpose as stated in §15.2-2223 of the Code of Virginia is to guide and accomplish "a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, including the elderly and persons with disabilities." The plan was prepared by the county planning staff in collaboration with the Planning Commission, the Board of Supervisors, other County and State officials, and citizens of Lancaster County. The Plan also contains information obtained from many other sources, such as other comprehensive plans, professional papers, periodicals, public documents, environmental and health regulations, and information required by State and Federal statutes to be included in all county comprehensive plans. The Lancaster County Comprehensive Plan has two broad objectives: first, to identify near-term, long-range and strategic needs of the county's population, and second, to provide a planning framework for guiding the physical, social and economic changes occurring in response to future growth and development. This plan also complies with the specific requirements levied in §15.2-2223,2224 and 2230 of the Code of Virginia. The requirement to review the plan every five years is a very significant part of the Code.

The remaining chapters of the Comprehensive Plan are organized as follows:

Chapter 2-Suitability of Land for Development. This chapter focuses on the physical factors that influence or constrain development such as those areas that are prone to flooding from storms and tidal surges, and those areas that have poor septic suitability. It also addresses characteristics of the land that may lend themselves to residential and commercial development but merit appropriate protection from such development to achieve a greater public good. Such a characteristic would be that land considered prime for agricultural purposes.

Chapter 3-Protection of Potable Water Supply. In addition to potable water, this chapter also focuses on those surface waters that are connected by tidal flow to the Chesapeake Bay. This is not only to ensure that Lancaster County meets its responsibilities under the Chesapeake Bay Act but also recognizes that sources of pollution such as faulty septic systems can impact not only these tributary waters, but also inland surface waters and the surface ground water supply.

Chapter 4-Shoreline Protection Study and Plan. This chapter reviews the different options for protecting shoreline from erosion in terms of their effectiveness under different conditions and their impact on the environment, especially as it pertains to

shellfish and finfish habitat. It then sets forth a plan for providing effective shoreline protection while respecting the need for such habitat as tidal wetland vegetation and subaquatic vegetation.

Chapter 5-Access to State Waters. This is one of the areas identified as needing the most attention in the Comprehensive Plan. As development pressure on waterfront property has increased substantially without apparent abatement many of those properties that allowed access to the general public have been converted to private use. Those parts of the County where the problem is most acute are identified, types of water access required are discussed, and objectives set for addressing the problem of public access.

Chapter 6-Public Facilities, Infrastructure, and Services. An inventory is provided of public facilities or capability related to transportation, recreation, health, safety, schools and other categories. This chapter also contains a list of historic areas as required by §15.2-2224 (1) with the continuing objective of performing a survey and study of such areas. Finally, problems or shortcomings are identified to guide the establishment of priorities for the Capital Improvement Program.

Chapter 7-Land Use and the Economy (Implementation). With the focus provided by the first six chapters on current physical and environmental conditions, natural and man-made, that may influence or limit the future use of land and the strategic needs of the County's population, this chapter assesses the applicability of various land use tools to Lancaster County. It also attempts to address the shortcomings of previous versions of the Comprehensive Plan, identified in the introduction, and speaks to those issues identified during public input sessions not previously addressed.

Given that Lancaster County is a Tidewater locality the comprehensive plan must reflect a planning emphasis on the requirements of the Chesapeake Bay Preservation Act. The only exception is the category "redevelopment of intensely developed areas." No areas in Lancaster County meet the Chesapeake Bay criteria for "intensely developed." Chapters 3 and 7 provide the planning framework through which requirements will be met.

Regulations adopted in accordance with the Chesapeake Bay Preservation Act are as follows:

- Physical constraints to development: Address those natural geographic qualities that seriously limit the potential for development.

- Protection of Potable Water Supply: Addresses protection of the existing and potential supply of drinkable water within the community to include quality and quantity.
- Shoreline Erosion Control: Focuses on the loss or potential loss of shoreline due to wind and wave erosion.
- Access to Waterfront Areas: Addresses access to state waters and the potential access of areas for private and public use.

The views indicated above are further illustrated in later chapters. In Chapter 2, environmental issues and assessment of existing conditions are discussed as they relate to suitability of land for development in Lancaster County.

In Chapter 4, the "Water Quality Preservation Plan," a strategy for meeting the requirements of the Chesapeake Bay preservation laws and regulations is set forth.

In Chapter 7, the structural framework of the future land use plan and land use policies will flow from the issues and considerations raised in the preceding chapters.

B. HISTORY

Lancaster County is located at the southeastern end of Virginia's Northern Neck peninsula, between the Rappahannock and Potomac Rivers. It was formed in 1651 from portions of Northumberland and York Counties. Over time, other counties were formed from its original area. Creeks and waterways with rolling woodlands and fields characterize the county. It is also known for its quiet rural charm, the retention of which citizens attending input sessions in early 2006 overwhelmingly supported.

Native American Indians originally inhabited the area. Lancaster was settled shortly after 1640, predominantly by people of English descent moving from settlements along the James and York Rivers. The first County seat was established at Queenstown on the west side of the Corrotoman River. In 1742, the County seat was moved inland to what is now Lancaster Courthouse. The present courthouse was completed in 2010 and houses basically all records dating from 1652. The prior courthouse, which dates to 1863 was renovated in 2011 and houses the County Administration offices. On the Courthouse Green, the original clerk's office (1797), and the old jail (dating to the first quarter of the 19th century) still stand. Mary Ball Washington Museum & Library, Incorporated uses these two buildings.

Prior to the Civil War, the economy of the county depended on tobacco and other types of agriculture. After the Civil War, the economy began to rely on the seafood industry. The shared importance of agriculture and seafood was evident by the early 1900's. By 1920, the economy included forestry as well. Fish, crab, and oyster industries employed many watermen. Trucking of tomatoes and potatoes was the prevalent agricultural industry. These industries were aided by inexpensive and easy transportation to market by steamboats. The menhaden industry has been a mainstay since the early 1900's, and remains important today.

During the 1920's, tourism and retail industries began to develop in White Stone and Kilmarnock. The commerce of Kilmarnock offered many shops and services to county residents. White Stone was seen as a thriving community. Irvington was the largest town and the center of the seafood business.

Changes that occurred during the 1930's made great impact on the county's economy. Automobiles became commonplace, and trucks began to replace steamboats as a means

to transport marketable goods. After a devastating hurricane in 1933, many docks and wharves were destroyed and were not rebuilt, thus ending reliance on steamboats for transportation of goods to outside markets.

Although employment was good in the 1940's, the economy of the county declined during the 1950's. Lancaster County became relatively unknown and unimportant, because of poor means of travel to any outlying areas.

With the opening of the Robert O. Norris Bridge in 1957, Lancaster County was provided ready access to counties on the Middle Peninsula. This led to several trends. The age distribution of people in the county began to change. Young people were seeking employment elsewhere and the number of senior citizens was increasing. There was quick growth in the trade and service industries, and tourism and recreation industries regained strength. The Tides Inn was established and opened in 1947.

Other services and facilities began to appear in response to the changing community needs. The Lancashire Nursing Home, Rappahannock General Hospital~~,~~ were all established during the 1960's and 1970's. The Rappahannock Westminster-Canterbury retirement community, opened in 1985, is a multi-million-dollar investment, providing services that continue to attract retirees to the county. Also, the Commonwealth Assistant Living Facility was established in 2002.

Although the basic industries of manufacturing, agriculture, logging and fisheries declined slightly in the 1980's, dramatic increases were noted in retail trade, recreational activity, and professional service employment. Kilmarnock has become the hub of retail and service businesses in the Northern Neck. The influx of retirees and outflow of younger people began in the early 1990's and continues today.

Abundant sights and attractions encourage tourism and recreation today. Historic buildings, restaurants, marinas, and resorts all entice tourists interested in the serene, natural beauty of the county as well as the recreational activities available. Also, the County has new attractions that were established such as the Compass Entertainment Centre, and the Wal-Mart store.

C. RECENT DEVELOPMENTS AND TRENDS

Land development in Lancaster County has been slow since 2008. Most of the recent development has been associated with small or family subdivisions. The majority of the 1,500 or so new housing units approved during the real estate boom of the early 2000's remain unbuilt. Most of the larger approved residential developments are simply waiting for the economy to improve before building. Some have changed ownership and are revising their plans to better accommodate the current economy. Since the Covid pandemic our county has been booming with construction with the large increase in building permits. This can also be attributed to the County's new Short- Term- Rental ordinance.

While much of the future development will continue to be residential, there is also evidence of significant commercial development. This is most evident in Kilmarnock where several local and new businesses are constructing new facilities or remodeling older ones. Also, a new satellite branch of Rappahannock Community College opened in Kilmarnock in 2012.

A motivated county Planning Commission, along with the county Board of Supervisors have been working diligently in providing new and improved amenities for the county citizens. Plans are currently in place for a new Middle/ High school, a building was renovated and designed to facilitate the Early Childhood Study Program, and the previous Middle School is currently being renovated to become the new facility for the Elementary School.

The County has been proactive in search of new and improved public access sites for citizens and visitors to enjoy, such as the renovation of the Greenvale Creek public access site to include a new fishing pier to complement the existing boat ramp, improve the public Canoe & Kayak launch site off of Windmill Point Road, working currently with other State agencies on permits to create a large and modern public beach and fishing pier at the end of Windmill Point Road. Also, the County purchased and has plans in place to design a new park at the Carters Cove public access site which was softly opened to the public in 2022. The county also has one other public access site that is in its early stages of design off of Weems Road. There has been progress with the Tri-Way Trail designs that will connect the three incorporated towns, and site-plans are available. Our Board members have been working together with the Broadband Authority, and plan to have high-speed Internet capability county wide by the end of 2024.

As changes arise Nationwide, we also have to change locally. As you will read throughout other updated Chapters in the Comprehensive Plan, County Staff along with its appointed Officials, and elected Officials have been working together to update County Ordinances, creating & revising codes as changes are needed to assist with citizens' needs and desires.

What then of the future? Clearly the problem of affordable, workforce housing must be addressed by establishing policy that, among other objectives, results in more affordable types of housing than single family being created. The adopted R-4, Residential Community Zoning District and the completed sixteen-unit *Mercer Place*, have evolved from this affordable housing concern. Also, while growth since 1990 has been relatively modest, it has the capability to change the character of the County over time from rural to something else, the greatest concern of those providing input to recent updates of the Comprehensive Plan.

The population of Lancaster County has declined from 11,391 as of the 2010 census to 10,788 as of the 2017 estimated census figures, the 2021 census established an increase of population of 10,928, but expansion of tourism, the recreation industry, and retail trade are still feasible while preserving the natural beauty and rural character of the area. While the 2010 U.S. Census figures show no manufacturers' shipments for Lancaster County

(counties with 500 or fewer employees are excluded), there are several small manufacturing businesses in the county. In addition, support of the basic industries of agriculture and those that are water dependent, as well as those related to the building trades and services, is key to maintaining a self-sufficient economy in Lancaster County. Best management practices designed to protect the natural environment must be mandated where they are critical and encouraged in all other activities. Detail consistent with and in support of these views will be provided in the remaining chapters.

CHAPTER 2 – SUITABILITY OF LAND FOR DEVELOPMENT

I. LANCASTER COUNTY SUITABILITY OF LAND FOR DEVELOPMENT

A. ASSESSMENT OF EXISTING CONDITIONS

Lancaster County covers approximately 135 square miles or approximately 86,267 acres of land. The County is rural in nature with limited public sewer infrastructure, however the Town of Kilmarnock operates a public water supply and sewage collection/treatment plant. Due to the extensive land area of the wider county, development in Lancaster County usually requires on-site sewage facilities for disposal of waste and individual or community wells for domestic water supplies. Therefore, development of land in Lancaster County is closely tied to the physical characteristics of the land. These characteristics include the suitability of the soil for septic systems, the degree of slope of the land, the depth of the soil to the water table, the shrink-swell potential of the soil, and the proximity of the intended development to sensitive environmental features. Lancaster County also features unique geological features and corresponding topographic changes, which add to the uniqueness of this area. The Suffolk Scarp is a ridge of major topographic change locally and is found along Route 3 from the Town of White Stone northward to Kilmarnock and along Route 200 toward Wicomico Church. This scarp is a remnant of the Miocene era when this feature was shaped by coastal forces and sea levels much higher than the present day. Elevations East of the Suffolk Scarp may lie between 10 and 20 feet above sea level and abruptly rise to 80 feet or more. (Virginia Department of Mines, Minerals, and Energy, 1973)

Sometimes the physical characteristics may act to preclude development such as when a parcel of land has steep slopes, wetlands, no suitable septic sites, or the presence of other environmentally sensitive features. Often development can occur, but with sensitivity to the unique physical properties of the particular parcel. The intent of this chapter is to provide a comprehensive base of information concerning physical challenges to development in Lancaster County. This base will provide a resource from which to draw policies and recommendations concerning future development in the County.

B. PHYSICAL FACTORS THAT INFLUENCE OR CONSTRAIN DEVELOPMENT

1. Chesapeake Bay Preservation Areas

The Chesapeake Bay Preservation Act of 1989 requires each county in Tidewater Virginia to designate land areas in their county that, if improperly developed, would contribute to significant degradation of the water quality of the Chesapeake Bay and its tributaries. The Chesapeake Bay Preservation Areas were broken into two classifications: Resource Protection Areas and Resource Management Areas. Resource Protection Areas (RPAs) are those lands and features that have a direct water quality function or impact. Resource Management Areas (RMAs) are lands that, if not properly managed, have the potential to degrade water quality or impact the functioning of RPAs. Detailed descriptions of the two Chesapeake Bay Preservation Areas and lands included

in each are given on the next page.

a. Resource Protection Area (RPA)

The RPA includes: 1) tidal wetlands, 2) non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, 3) tidal shores, 4) other lands as designated and 5) a 100' buffer adjacent to and landward of any of the preceding components. This buffer area acts to filter run-off from developed areas, to provide natural stabilization of soils from forces of tidal and upland erosion, and to provide a setback that protects dwellings from erosion, wave action, and flooding. The total amount of land designated as RPAs in Lancaster County is estimated to be 3,356 acres (3.9%).

Resource Protection Areas are strictly regulated. Development in the RPA is limited to new water-dependent facilities, expansion of existing water-dependent facilities, and redevelopment. In the RPA, a 100 foot buffer area of vegetation that is effective in limiting runoff, preventing erosion, and filtering non-point source pollution from runoff must be retained if already present, or established if it does not exist. Clearing in the RPA is limited to what is necessary to provide for reasonable views of the water, access to the water, and for general woodland management purposes. Cleared vegetation must be replaced with other vegetation that is equally effective in protecting water quality.

b. Resource Management Area (RMA)

In Lancaster County all land outside of the designated RPA is classified as an RMA. The RMA is protected by the Chesapeake Bay Preservation Act and the Lancaster County Chesapeake Bay Preservation Ordinance through the establishment of performance standards that apply to all development and redevelopment.

Performance standards are as follows:

1) No more land shall be disturbed than is necessary to provide for the desired use or development;
2) Indigenous vegetation shall be preserved to the maximum extent possible consistent with the use and development allowed;
3) A maintenance agreement with the owner or developer shall be established where best management practices require regular or periodic maintenance;
4) All development exceeding 2,500 square feet of land disturbance shall require the issuance of a permit and be accomplished through a plan of development review process;
5) Land development shall minimize impervious cover consistent with the use or development allowed;
6) Any land disturbing activity regardless of size shall comply with the requirements of the Lancaster County Erosion and Sediment Control

Ordinance;

7) On-site sewage treatment systems not requiring a Virginia Pollutant Discharge Elimination System (VPDES) permit shall be pumped out at least once every five years, and, for new construction, a reserve sewage disposal site with a capacity at least equal to that of the primary sewage disposal site shall be provided;
8) Stormwater management criteria which accomplish the goals and objectives of the Virginia Stormwater Management Regulations shall be satisfied;
9) Land upon which agricultural activities are being conducted, including but not limited to crop production, pasture, and dairy and feedlot operations, or lands otherwise defined as agricultural land, shall have a soil and water conservation plan;
10) Silvicultural activities are exempt provided that these activities adhere to water quality protection procedures prescribed by the Virginia Department of Forestry in the January, 1997 edition of "Forestry Best Management Practices Handbook for Water Quality In Virginia";
11) All wetlands permits required by law must be obtained prior to authorizing grading or other on-site activities to begin.

2. Flood-Prone Areas

Due to its proximity to large tidal bodies of water, Lancaster County has certain, mapped, flood prone areas. Damage from floodwaters in these areas can result in expensive repairs to structures, loss of use of structures (damaged homes), temporarily inoperable septic systems, contamination of water supplies, and quite possibly in bodily injury or loss of life. These are problems that can be further aggravated by the cumulative impact of development in flood-prone areas.

Once developed, land in the flood plain is lost as an area of filtration due to the resulting placement of structures and impervious cover. The result is that flood events can cause more damage than they did prior to development. For example, floodwater will travel faster and crest higher if water is not allowed to filter into the ground, or travel down streams unimpeded from man-made structures. The increased velocity of floodwaters can result in increased damage to properties, and the higher flood elevations could result in damage to properties that were not affected previously.

In all, the County has approximately 6,884 acres (8% of county area) of land that lies within the 100- year flood plain (FEMA 2015). These areas are highlighted in the "100 Year Flood Map" and are summarized in the chart below.

	Area in Acres	**% of County**
100 Year Floodplain	6,884	8%
Outside 100 Year Floodplain	79,383	92%
Total	86,267	100%

3. Wetlands

Wetlands are defined as "..areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (U.S. Army Corps of Engineers/EPA, *section* 404, Clean Water Act). Generally, wetlands can be classified as either tidal or non-tidal, vegetated and non-vegetated. Locally, Lancaster County has approximately 4,500 acres (5.2%) of tidal wetlands and 1,349 acres (1.6%) of non-tidal wetlands. (Figures were obtained using the Lancaster County Geographic Information System utilizing a digital National Wetland Inventory map layer. Distribution of tidal and non-tidal wetlands in Lancaster County can be viewed on the "Tidal and Non-Tidal Wetlands" Map.)

Wetlands are important natural resources that provide many positive benefits to the man-made and natural environments. Wetlands provide aesthetic, recreational, and economic benefits to the community. Furthermore, wetlands are spawning and nursery grounds for finfish and shellfish, feeding and wintering sites for migratory waterfowl, nesting habitat for shore birds, and homes to a wide variety of wildlife. Wetlands further serve as important areas for groundwater recharge, flood control, pollution absorption, and retention of sediment from storm water run-off.

The inclusion of non-tidal wetlands as Resource Protection Areas (RPAs) is crucial and integral to meeting the criteria in the Chesapeake Bay Preservation Act Regulations adopted by the Chesapeake Bay Local Assistance Board. The designation of RPAs requires the inclusion of non-tidal wetlands that are both contiguous to and connected by surface flow to either tidal wetlands or water bodies with perennial flow. Surface flow means water that is moving across the ground surface from ground water springs and/or wetland drainage either overland or through a channel.

4. Steep Slopes

Development and disturbance of land on steep slopes (over 15% grade) can have many negative impacts. First, stabilization of soils after development is often costly and difficult due to the fact that highly erodible soils are often found on steep slopes. Disturbance of these areas can result in erosion of the soils, causing sedimentation from run-off soils to flow into the streams and main bodies of water. Furthermore, steep slopes, and the soils found there, are not suitable for septic systems. The combination of unstable soils and poor septic suitability can result in higher construction costs if development is allowed to occur.

In Lancaster County, steep slopes are often found adjacent to the tributary streams and creeks of the Rappahannock River and Chesapeake Bay. In the County there are 19,415 acres (22.5%) of land which are classified as steep slopes. These areas can be seen in more detail on the "Slope Map" and "Topography Map" and are summarized in the following chart.

Degree of Slope	Area in Acres	% of County
0 -6%	56,763	65.8
6 - 15%	10,002	11.6
15 - 45%	15,652	18.1
Over 45%	3,763	4.4
N/A	87	0.1
Total	86,267	100.0

5. Shrink-Swell Soils

Shrink-swell soils are those that can greatly change in volume when their moisture level fluctuates normally throughout the year. The shrink-swell potential of the soil is a measurement of how much volume change can be expected in a soil with an increase or decrease in moisture levels. This measurement is important because continued expansion of shrink-swell soil can result in heaving, which places additional pressure on foundations. Contraction of these soils can lead to void areas that do not provide uniform, adequate support to the footing of the foundation. Current building codes require engineered footer systems in these situations, which reduce later building complications.

The shrink-swell potential of Lancaster County soils was mapped using the County's Geographic Information Systems and the Lancaster and Northumberland Counties Soil Survey. Soil types in the County were studied as to their shrink-swell potential up to depths of 60". Sixty inches was chosen to account for any change in grade along the length of any planned or future structures. If any soil type was classified as having high shrink-swell potential anywhere in this 60" range, it was grouped in the "high" category. The extent of shrink-swell soils in Lancaster County can be seen on the "Shrink-Swell Potential Map" and are further described in the following chart.

Shrink-Swell Potential	Area in Acres	% of County
None	416	0.5
Low	24,992	29.0
Moderate	56,201	65.1
High	4,571	5.3
N/A	87	0.1
Total	86,267	100.0

6. Septic Suitability

a. Septic Systems/Sewage Disposal

Approximately 83% of all private residences in Lancaster County utilize on-site septic systems for sewage disposal purposes. The potential for septic systems causing pollution of surface water bodies can stem from the initial improper siting of the system, or from the failing of aged or not properly maintained systems. Often septic systems have been placed in soils that can act to heighten the

negative impact of the system. Specific soil characteristics that can impact operation of septic systems are discussed below.

b. Depth to Water table

Depth to the water table varies greatly throughout Lancaster County. In some areas of Lancaster County, the seasonal high water level is as much as 40 or more feet below the ground surface. However, in other areas of the County the seasonal high water table is often less than 24 inches from the ground surface. The depth to the water table is important because soils where the water table is higher are not suitable for the use of septic systems.

First, in areas with high water tables, groundwater can rise into septic drain fields, mixing with untreated effluent. This situation can result in contamination of the water table aquifer that is used by over one fourth of all homes in Lancaster County. Additionally, septic systems in areas with seasonally high water tables can act to contaminate nearby surface water bodies. During times of high water table levels, effluent in an affected system is not able to percolate down through the drain field. Instead the untreated effluent can rise to the surface and pool because of the high water table. During a rainstorm, this pooled effluent can quickly drain into nearby surface water bodies.

Areas in Lancaster County with high water tables can be viewed in the "Water Depth Map" and are further summarized in the following chart.

	Area in Acres	**% of County**
< 24" to Water Table	24,386	28.3
> 24" to Water Table	61,794	71.6
N/A	87	0.1
Total	86,267	100.0

c. Highly Permeable Soils

Highly permeable soils also can act to increase negative impacts of septic systems. These soils allow septic effluent to percolate more quickly through soils underneath the drain field while not allowing for proper filtration. If the effluent percolates before it is properly treated, then it can become a threat to the ground or surface water that it acts to recharge.

The combination of high water tables and highly permeable soils is particularly a problem in densely developed areas close to the county's shoreline. The high number of septic systems in conjunction with poor soil conditions can lead to elevated levels of fecal coliform bacteria in adjacent surface water bodies, which can then result in the condemnation of the area for shell fishing. (See "Septic Suitability Map")

Highly permeable soils in Lancaster County include the following types:

1. Coastal Beach (0.48%)
2. Lakeland loamy fine sand, gently sloping (0.6%)
3. Rumford loamy sand, gently sloping (0.2%)
4. Rumford loamy sand, sloping, eroded (0.05%)
5. Sloping sandy land (9.3%)
6. Steep sandy land (18.0%)

d. Low Permeability Soil

Clayey soils with low permeability are not desirable for septic systems. These types of soils do not allow effluent to percolate down properly out of the drain field. If the effluent does not percolate down through the system's drain field, because of low permeability soil conditions, it could instead rise to the surface. This is an undesirable situation, which can be worsened in times of run-off when untreated effluent can run off into nearby surface water bodies. (See "Septic Suitability" map)

Low permeability soils include but may not be limited to:
1. Beltsville very fine sandy (0.1%)
2. Bladen silt loam (0.1%)
3. Elkton silt loam (0.1%)
4. Lenoir silt loam (0.1%)

e. Steep Slopes

As discussed in the "Steep Slopes" Section, areas of steep slopes are not suitable for the placement of septic systems. Generally, septic systems need level areas for drain fields. Septic systems placed on slopes do not allow for the proper treatment of wastewater because the resulting effluent will travel down-hill to the end of a drainfield, where it can leach out, instead of slowly and evenly percolating through the entire length of the drain field. (See "Slope Map" and Chart)

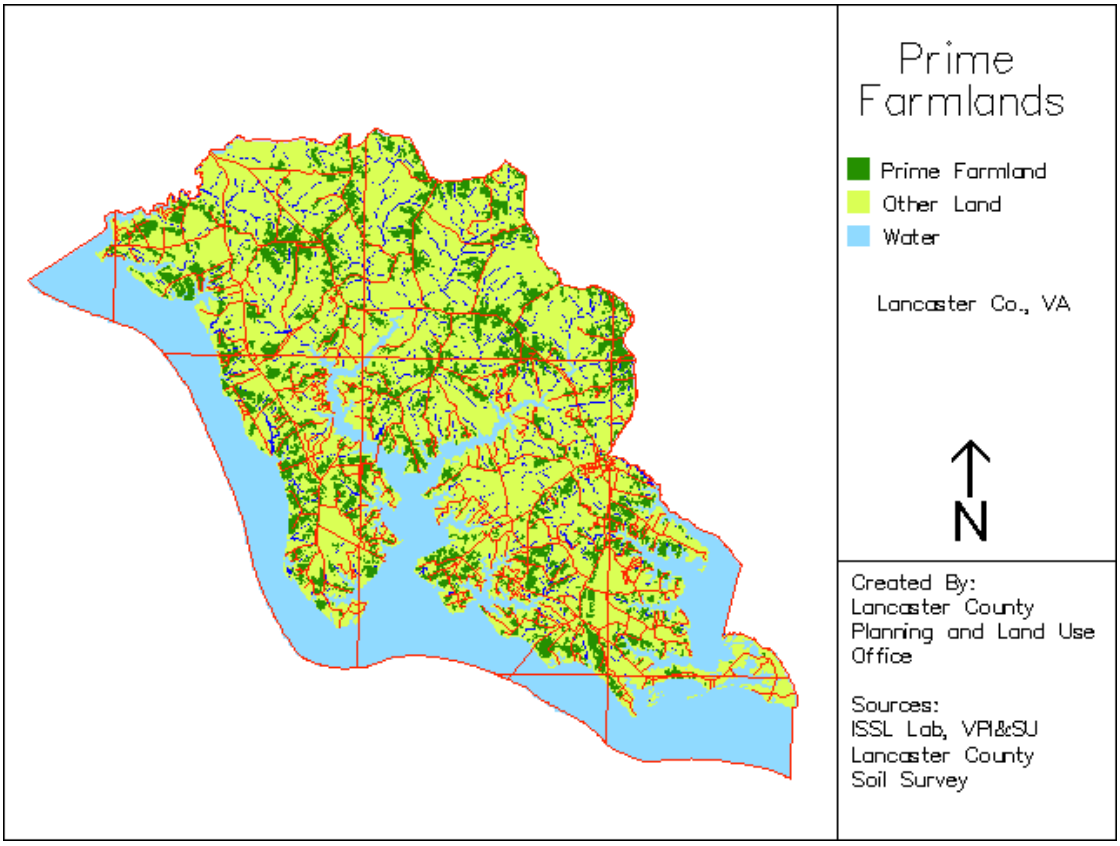
Septic Suitability	**Area in Acres**	**% of County**
Poor	30,336	35.2
Fair to Poor	742	0.9
Fair	21,902	25.4
Good	31,452	36.4
N/A	1,835	2.1
Total	86,267	100.0

7. Prime Farmlands

Lancaster County has a rich history of agriculture dating back to the Colonial Era.

Agriculture and related services are important contributors to the local economy. Even though their role in the local economy has diminished, farms in Lancaster County still serve many important purposes. First, farmlands provide an aesthetically pleasing landscape that is enjoyed by all residents of the County. The 1992 adopted comprehensive plan cites farmlands as strong contributors to the County's rural nature. Additionally, farmlands play an important environmental function in that they are prime areas for recharge of the County's groundwater aquifers. Areas of undeveloped, pervious land, such as woodland and farmland, are necessary for the purposes of aquifer recharge. It is because of these important roles that the 1992 Comprehensive Plan identified farmlands as resources that are worthy of conservation and preservation.

However, lands that have historically supported agriculture in Lancaster County are also the lands that are the most suitable for development. Lands in agricultural use are usually level, cleared, well drained, and consist of soils suitable for septic systems. These are conditions that are usually sought for other land uses such as residential development. The Farm Preservation Committee, appointed by the Planning Commission, identified the effect of attractive alternative uses in their August 2006 report, by pointing out that land in farm use had declined from 21,605 acres (25.0%) in 1990 to 15,071 acres (17.5%) in June 2005. The decline continues, with 10,695 acres of land in use according to the 2012 Census of Agriculture.



The Lancaster and Northumberland Counties Soils Survey ranks soil as to its potential for farming. Soils are grouped into eight different "capability units" which define their suitability

for farming. The classifications are based on the limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. Class I soils are the best soils for farming, descending to Class VIII soils which have limitations that make them unsuitable for farming, as well as most other uses. For purposes of this plan, all Class I and some Class II soils were considered to be prime soils for agriculture. Areas of prime agricultural soils can be seen in the "Prime Farmlands" map. (A list of soil types considered prime for agricultural activity can be seen in Appendix IV.)

C. EXISTING LANCASTER COUNTY ORDINANCES

1. Erosion and Sediment Control Ordinance

The Lancaster County Erosion and Sediment Control Ordinance establishes a program to protect and improve the water quality of the Chesapeake Bay that can be implemented on the local level. The ordinance regulates any land disturbance equal to or greater than 2,500 square feet in size. Before any site disturbance occurs, an erosion and sediment control plan for the site must be submitted and approved by the County's erosion and sediment control officer. Furthermore, all land-disturbing activities must comply with the Chesapeake Bay Preservation Ordinance.

2. Zoning Ordinance

a. Waterfront Residential Overlay Zone (Article 18; Zoning Ordinance)

The Waterfront Overlay Zone regulates all parcels of land recorded on or after May 11, 1988 which are for residential use or residential-development and that lie within 800 feet of tidal waters and wetlands. This zone requires lots to have a two-acre minimum size. Additionally, the zone requires a 100-foot buffer landward from high water mark and tidal wetlands, and a 50-foot buffer landward from non-tidal, non-RPA wetlands, as well as a 200-foot-wide average waterfront requirement for new subdivision lots.

b. Chesapeake Bay Preservation

This zone and its requirements were discussed in the "Chesapeake Bay Preservation Areas" section on pages 2-1 and 2-2.

c. Flood Plain Overlay (Article 23; Zoning Ordinance)

The Flood Plain Overlay Zone applies to all lands within the County that are identified as being in the 100-year floodplain by the Federal Emergency Management Agency. All development activities in the flood plain district can be undertaken only after issuance of a zoning permit. Any development must also strictly comply with the Virginia Uniform Statewide Building Code and the Lancaster County Subdivision Ordinance. All applications for development and building permits in the floodplain further require submission of a site plan. The

site plan must detail the existing and proposed topography on the site, the 100-year flood elevation, and the elevation of the first floor of any future residential structures.

3. Subdivision Ordinance

The Subdivision Ordinance of Lancaster County recognizes that the County's economic viability is dependent on the wise use of its land and other natural resources. Many water quality related issues are addressed by this ordinance including the proper siting of wastewater disposal systems, assurances of strict adherence to the requirements of the Chesapeake Bay Preservation Act, and the adequate provision of proper erosion and sedimentation control, drainage, storm water management and flood control. Section 5-26 of the Subdivision Ordinance was amended to allow clustered development in exchange for dedicated open space to help retain the rural character of the County. Additional changes may be made to the Subdivision Ordinance to ensure that future development supports this objective.

4. Wetlands and Beaches and Dunes (Article II & III, Environmental Ord.; Lancaster Code)

The Wetlands Ordinance and the Beaches and Dunes Ordinance of Lancaster County applies to all tidal, non-vegetated and vegetated wetlands and beaches and dunes in Lancaster County. These ordinances require any person pursuing a permitted use in a wetlands area, to first file an application with the Virginia Marine Resources Commission. The permit application details the intended use, the scale of the project, equipment to be used in construction and how the equipment will access the site, the cost of the project, the purpose of the project, and other applicable information. After submittal of the application, the proposed project will go to public hearing at a regularly scheduled meeting of the Lancaster County Wetlands Board, which has the authority to approve or deny the permit application.

II. LAND USE

Development in Lancaster County is closely tied to the physical characteristics of the site to be developed. This close bond with the land is further magnified by the wide variety of environmentally sensitive areas found in the County including steep slopes, flood plains, prime agricultural lands, wetlands, and soils not suitable for septic systems. In all, approximately 56,229 acres or 65.2% of Lancaster County land is limited in some form. There is still a large quantity of land that has no limitations and is suitable for development. In total 30,038 acres or 34.8% of Lancaster County land has no physical constraints to development. These areas can be seen on the "Existing Conditions" Map, and the accompanying inset maps.

A. PHYSICAL CONSTRAINTS TO DEVELOPMENT

Specific physical limitations to development that cause concern in Lancaster County

include the suitability of soils for septic systems, the loss of prime agricultural farmlands to development, and the presence and location of shrink-swell soils in Lancaster County. Approximately 30,336 acres, or 35.2%, of land in Lancaster County is classified as "poor" for suitability of its use for septic systems. However, four out of five private residences in Lancaster County are dependent on septic systems for their sewage disposal purposes. Moreover, the total number of septic systems will continue to grow as more land becomes developed in the County with many new systems being placed in marginal or poor soils. The dependency on septic systems is amplified because the Town of Kilmarnock possesses the only public sewage treatment facility in Lancaster County. Therefore, continued protection of ground and surface water supplies in Lancaster County will be contingent on the proper siting of new septic systems. This is even more significant given that the water table aquifers (the Yorktown-Eastover and the Columbia) are the ones most susceptible to contamination and are used by over 25% of all homes in Lancaster County.

Shrink-swell soil can act to damage the foundations and walls of buildings, resulting in expensive repairs to affected structures. However, the negative impacts of shrink-swell soil can be prevented during the initial construction of a building, if the builder is aware of this soil condition. In Lancaster County there is approximately 4,571 acres (5.3% of the County), of soil with "high" shrink-swell potential. Awareness of this soil condition needs to be heightened in Lancaster County to better protect property owners and their investments.

B. EXISTING COUNTY ORDINANCES

All new development in Lancaster County must adhere to existing county ordinances and is often subject to the public hearing process. Lancaster County has ordinances that regulate new and existing development including the Zoning Ordinance, the Wetlands Ordinance, the Subdivision Ordinance, and the Erosion and Sediment Control Ordinance. A standalone ordinance deals with Chesapeake Bay Preservation and makes violations a Class I misdemeanor. Overall, Lancaster County's present ordinances are strong in the protection of water quality and the current level of enforcement is high.

C. HEIGHTENED AWARENESS

Residents in Lancaster County are very attuned to many environmental topics such as residential shoreline development, the Chesapeake Bay Preservation Regulations, the value of wetlands in protecting water quality, the location of flood-prone areas in the County, and the impact of land use on surface water quality. However, there is significantly less awareness of other sensitive environmental features that need to be considered in planning for new development. Many citizens in Lancaster County are not aware of the presence of shrink-swell soils in Lancaster County, the important role farmlands play in providing ground water recharge areas, the effect of development on steep slopes, and the impact of improper septic system placement on surface and groundwater supplies. Providing County residents this information, particularly in regard to their own property, will help them make environmentally sound decisions when

considering new development.

The pace of development in Lancaster County, and the size of the county are such that people developing sites have significant interaction with County officials throughout the process. Having a system in place that enables County officials to advise citizens and potential property developers of limitations on their property, prior to development, can prevent much of the negative impact of development before it occurs.

III. LANCASTER COUNTY SUITABILITY OF LAND FOR DEVELOPMENT PLAN

A. PHYSICAL CONSTRAINTS/LIMITATIONS DATABASE

To ensure that new development occurs with full knowledge of site constraints prior to development occurring, the County has developed (the lancova.com-GIS tool) a countywide, parcel specific database highlighting the physical constraints present on each parcel of land such as soil type, extreme slopes, and whether or not the parcel is in the 100-year floodplain. County staff is utilizing this Geographic Information System to further develop this customized database showing these different limitations present on individual properties. This database can be used by accessing the Land Records Database on the County website to make printouts that can be checked when property owners start the development process. The printout lets County staff and property owners know if there is the possibility of a physical constraint on the property at the onset of development plans. Alternative plans made necessary by the limitation can then be discussed at this point in the development process.

B. SEPTIC SYSTEM INVENTORY

To help identify areas of the county where there are already high concentrations of septic systems, Lancaster County should complete an exhaustive inventory and mapping of existing septic systems in the County. Information obtained from this effort would be valuable in developing a future land use map for Lancaster County. Additionally, once compiled, this information would aid in any future efforts to identify and prioritize areas for efficient placement of a wastewater treatment works. This is consistent with further coverage of this subject in Chapter 3 as it pertains to continued protection of Lancaster County's surface and groundwater resources. High concentrations of septic systems in the County, which could act together to negatively impact the quality of Lancaster's surface and groundwater supplies, could be pinpointed. County staff have begun a relationship with researchers from Old Dominion University and VIMS to support grant funding of research projects in this regard, starting with septic systems in Flood Zone and flood prone areas. The recent Chesapeake Bay Preservation Act requirement to verify that all on-site septic systems are inspected and/or pumped once every five years has enabled the County to begin the process of creating a septic system database and inventory.

C. CONTINUE PRESENT ENFORCEMENT AND PLANNING LEVELS

To ensure continued protection of the quality of Lancaster County's surface water bodies, the County must continue its present, active enforcement of the Chesapeake Bay Preservation and Erosion & Sediment Control Ordinances.

D. ENCOURAGE RE-USE OF SUITABLE ABANDONED STRUCTURES

To limit the need for new construction on undeveloped sites and to limit increases in the amount of impervious surface cover in the County, Lancaster County will perform an inventory of abandoned or unused buildings with the potential to be renovated and then set forth policies that strongly encourage re-use and rehabilitation of suitable, abandoned structures. This proposal is designed to serve many purposes. First, these properties are sometimes safety hazards and often have abandoned wells. Improvements to the on-site water and sewage facilities at these structures would act to protect water quality in Lancaster County. Additionally, improvements to abandoned properties would result in increased assessments and, in turn, increased tax revenue. Lastly, by using an existing structure the user prevents undeveloped land from being developed at that time and also prevents an increase in impervious surface cover in Lancaster County.

E. INVESTIGATE FEASIBLE METHODS OF PRESERVING PRIME FARMLAND IN LANCASTER COUNTY

Preservation of the rural character of Lancaster County was the most prevalent and agreed upon objective of those identified during public input sessions held in March of 2006.To ensure continued protection of the quality of groundwater supplies, to ensure that farming remains a viable occupation in the County, and to retain the rural character of the County, feasible methods of preserving prime farmland as described in the Farmland Protection Committee Report of August 2006 will be developed. Such strategies as expansion of the existing land use taxation program, conservation planning whereby farmland is designated a primary conservation area, and, most importantly, promoting new market opportunities will be pursued. While obvious, protection and enhancement of the livelihood of the farmer through new markets is essential to farmland preservation.

A Conservation Easement Ordinance was adopted (Article 27 of the Zoning Ordinance) in 2011, which creates a program for the County to co-hold (with qualified non-public bodies) conservation easements voluntarily offered by landowners. This program will serve as one means of assuring that the County's resources are protected and efficiently used and will help in preserving open-space and farmland and the rural character of the County.

F. IDENTIFY POSSIBLE IMPOUNDMENT AREAS

This recommendation would be carried out in conjunction with the similar proposal put forth in Chapter Three: Protection of Potable Water Supply Plan. Chapter Three details

the County's complete reliance on a declining groundwater aquifer supply. It is further recommended that the County explore strengthened county ordinances to ensure protection of proposed impoundment areas.

IV. GOALS AND OBJECTIVES

GOAL #1: **Encourage new and orderly development in areas of the County most suitable for new growth.**

Objective: Create zoning incentives and ordinance amendments that help direct new development to areas of the County most suitable for growth.

Objective: Develop amendments to the zoning ordinance that help protect property owners from potential hazards of shrink-swell soil and high water tables.

Objective: Evaluate existing ordinances and develop modifications or new ordinances that will increase open space and preserve the rural character of the County.

GOAL #2: **Ensure that new development is designed in a manner that provides for continued protection of the surface and groundwater resources of Lancaster County and the State of Virginia.**

Objective: Continue consistent enforcement of the Chesapeake Bay Preservation Act and Erosion and Sediment Control Act Regulations to ensure protection of the water quality of the Chesapeake Bay and its tributaries.

Objective: Protect possible water impoundment areas presented in the Lancaster County Protection of Potable Water Supply Plan.

Objective: Develop County ordinances to protect proposed impoundment areas.

Objective: Provide incentives for re-use and rehabilitation of existing, vacant structures in order to limit need for new construction and increases in impervious surface cover in the County.

GOAL #3: **Preserve farm and forest land to help Lancaster County retain its rural character.**

Objective: Develop ordinances that discourage "checkerboard" subdivision and encourage grouping or clustering of development into a limited area with dedicated open space of sufficient size and quality for farming operations.

Objective: Create a Rural Conservation District with sliding scale density that decreases as acreage increases, including a maximum dwelling lot size with uses limited to agricultural or forestal including hunting.

Objective: Investigate the concept of a Purchase of Development Rights (PDR) program consistent with state guidelines to receive matching funds to purchase permanent easements on farm and forestland.

Objective: Investigate the concept of a Transfer of Development Rights (TDR) program consistent with state guidelines to direct development away from farm and forestland and toward already developed areas.

GOAL #4 Preserve the industry of farming in Lancaster County

Objective: Provide additional educational materials and advertising to inform all residents of the land use taxation program, open its enrollment period year round with deadlines corresponding to year end, and make land use taxation available to forestland as allowed by the state.

Objective: Make Lancaster County "farm-friendly" by putting up tractor "Share the Road" signs in cooperation with the Virginia Department of Transportation.

Objective: Create a countywide farmers market to encourage small vegetable and alternative crop farms.

Objective: Actively promote in conjunction with other state or local governments the production and use of biodiesel and ethanol.

Objective: Take every action as appropriate to ensure that Lancaster County farmers have a market in close proximity for traditional grain crops.

CHAPTER 3 – PROTECTION OF POTABLE WATER SUPPLY

I. PROTECTION OF WATER IN LANCASTER COUNTY

The groundwater and surface water supplies of Lancaster County are recognized to be some of its most valuable natural resources. Lancaster's groundwater resources provide the County with 100% of its potable water supply. Meanwhile, the County's surface water provides a source of employment for the seafood industry, a major attraction for the tourism industry, a source of recreation for citizens, and a potential future water supply for the County. The health of the people, the economy, and the hope for future growth all depend on the quality of these important water resources.

The Lancaster County Potable Water Supply Study and Plan will assess the existing state of these resources, develop goals and objectives concerning the water supply, and present recommendations for protecting and enhancing the water supply in the future. The study will be divided into two sections. The first will examine the existing surface water conditions in Lancaster County. The second will investigate the existing groundwater conditions in the County. The plan will be realistic in that it recognizes that surface and groundwater resources are regionally shared and therefore require regional efforts to ensure their protection. However, the plan also recognizes that much can be done within the county's boundaries to protect our vital water resources. Recommendations proposed in this plan address the regional and local nature of these resources.

A. SURFACE WATER

Lancaster County is bordered by the Chesapeake Bay to the East and the Rappahannock River to the South. Many tidal water bodies meander through the County on the way to the Bay and River including Lancaster Creek, the Eastern and Western branches of the Corrotoman River, Carters Creek, Indian Creek, Dymer Creek, Tabbs Creek, and Antipoison Creek, as well as many smaller creeks. Combined, these water bodies give Lancaster County 330 miles of tidal shoreline.

Lancaster County also has many existing privately owned millponds that are categorized as surface water. These millponds are generally located in the freshwater sections at the headwaters of creeks and were created through the use of impoundment structures. Included in this group are Balls, Blakemore, Kamps, Chinns, Davis, Dunton, and Norris millponds.

1. Surface Water Quality

The quality of surface water is of vital importance to the Lancaster County community. First, many commercial fishermen, seafood industry owners, marina owners, and related employees depend on local waters for their livelihood. Second, citizens of the county enjoy living in a rural, scenic setting that is enhanced by views of, and access, to the water. Lastly, the water is a source of recreation for many in the Lancaster County community, as well as for many visitors to the area.

Agriculture is a major industry within Lancaster County and one whose activities can significantly affect the quality of surface water. Farmers, county officials, and the local Soil and Water Conservation District must work together in the development of nutrient management and other conservation plans that will provide protection to Bay waters while allowing farmers to maximize the productivity of farmland. Well owners may request a 400-foot buffer zone for protection from possible health hazards.

Conservation plans consider the existing conditions of each individual farm. The plan takes into account soil types, slope, drainage patterns, crop cover and animal populations. Based on the available data and using the Soil Conservation Field Office Technical Guide, a plan is drawn up that recommends the most appropriate conservation practices for each farm. Components of the plan may include grassed waterways for drainage, crop rotation, contour strips, water diversion structures, nutrient management, pesticide management, and herbicide management.

Farmers in Lancaster County generally control the use of fertilizers and pesticides as a matter of complying with law, but also as a matter of economics. With the high prices of fertilizer and pesticides, farmers are extremely careful to use only the amount of fertilizer and pesticide that can be absorbed into the soil rapidly. No-till farming is commonplace and has helped considerably to control runoff by limiting disruption to the soil and is strongly encouraged.

The map, Lancaster County Farm Plan Inventory CBLAD and NNSWCD Farm Plan Data, shows cultivated areas in Lancaster County. It draws a distinction between those farms for which a plan is on record and those for which a plan is not on record. While this map indicates a large number of farms for which a plan does not exist, or is not recorded, it is believed that many do have a plan. As mandated by the Chesapeake Bay Preservation Act, Lancaster County requires plans.

2. Measures of Surface Water Quality

a. Condemned Shellfish Grounds

One indicator of surface water quality is the location of condemned and seasonally condemned shellfish grounds. Every two years the Commonwealth of Virginia prepares a report on the quality of the State's Waters and presents it to the U.S. Environmental Protection Agency and the United States Congress. The document is called the 305 (b) Report to EPA and Congress and addresses how well the State is meeting the Federal Clean Water Act's goals of providing waters suitable for swimming and fishing. In this report, state waters are evaluated as to whether they are "Fully Supporting," "Fully Supporting But Threatened," "Partially Supporting," or "Not Supporting" concerning the goal of fishable waters. Local waters that have been condemned for shell fishing by the Virginia Department of Health fall under the category of Partially Supporting in regard to fishing.

Lancaster County has areas of condemned shellfish grounds. Typically, shellfish condemnation areas in Lancaster County are found in portions of creeks, where the salinity is lower and the tidal flush is decreased. Exceptions are Carter Creek, Greenvale Creek, Paynes Creek, Beach Creek, Lancaster Creek, and Mulberry Creek, which are all mostly, or totally, designated as condemned or seasonally condemned.

Locations of shellfish condemnations are important water quality indicators because the waters have been condemned due to elevated levels of fecal coliform bacteria. High levels of fecal coliform bacteria can be due to animal (domestic and wild) waste, failing septic systems, marinas, or the flushing characteristics of the particular water body.

b. Ambient Water Quality Monitoring

Another measurement of water quality that is addressed in the 305 (b) Report is ambient water quality monitoring results. The Virginia Department of Environmental Quality has designated monitoring stations at various locations in the different surface water bodies throughout the state. The stations are used to monitor four parameters including dissolved oxygen, pH, temperature, and fecal coliform bacteria. Data collected from each station is then assessed to see if it meets the Virginia Water Quality Standards for Dissolved Oxygen, pH, and Maximum Temperature. There are seven ambient water quality stations located in, or very close to, Lancaster County's boundaries further identified as follows:

W 22 (Station ID: 3-CRR003.38) - Corrotoman River near Red Buoy #6 in Lancaster County.

W 23 (Station ID: 3-RPP010.60) - Rappahannock River off Orchard Point near the Lancaster County and Middlesex County boundary in the Rappahannock River Basin.

W 24 (Station ID: 3-RPP017.72) - Near buoy #8 southwest of the mouth of Greenvale Creek near the Lancaster County and Middlesex County boundary in the Rappahannock River Basin.

W 25 (Station ID: 3-RPP025.52) - Near buoy #11 off Goose Point on the Middlesex County side in the Rappahannock River Basin.

W 9 (Station ID: 7-IND002.26) - Indian Creek opposite Kilmarnock Wharf on the Northumberland County side of the creek in the Chesapeake Bay Basin.

c. Nonpoint Source Pollution Monitoring (will be addressed below under "Threats to Surface Water Quality" section.)

3. Sensitive Surface Water Features

Lancaster County is fortunate to benefit from an abundance of marine resources that are directly related to the quality of its surface water bodies. These natural resources include Submerged Aquatic Vegetation, Wetlands, and Shellfish Grounds. Descriptions of these features, their functions in the man-made and natural environments, and the extent of their presence in Lancaster County are given below.

a. Submerged Aquatic Vegetation

Submerged Aquatic Vegetation (SAV), or sea grass, is a valuable natural marine resource that is found adjacent to the shoreline in many parts of Lancaster County. SAV is important because it provides ideal habitat for blue crabs and juvenile finfish. SAV also acts to provide protection for molting crabs and is a source of food for waterfowl. Lastly, as evidenced by the important role it plays in the marine environment, SAV is also of great value to the County's commercial and recreational fisheries.

The amount of SAV in the waters around Lancaster County has generally been increasing since 1990 but can decrease in the short term as a result of excessive rain or other weather related conditions that affect the ambient quality of the water. The most current and accurate depiction of SAV can be found on the website:

http://www.vims.edu/bio/sav/sav04/segments/rppmh_page.html

b. Wetlands

Wetlands are defined by the United States Fish and Wildlife Service as "lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water". Generally, wetlands can be classified as either tidal or non-tidal. Locally, Lancaster County has approximately 4,504 acres of tidal wetlands and 1,349 acres of non-tidal wetlands (Figures were obtained using the Lancaster County Geographic Information System utilizing a digital National Wetland Inventory map layer.)

Wetlands are important natural resources that provide many benefits to the man-made and natural environments. Wetlands provide aesthetic, recreational, and economic benefits to the community. Furthermore, wetlands are spawning and nursery grounds for finfish and shellfish, feeding and wintering sites for migratory waterfowl, nesting habitat for shore birds, and homes to a wide variety of wildlife. Wetlands further serve as important areas for groundwater recharge, flood control, pollution absorption, and retention of sediment from storm water run-off (Pg 1, Atlas of National Wetlands Inventory Maps of Chesapeake Bay. U.S. Fish and Wildlife Services: September, 1986).

c. Shellfish Grounds

Lancaster County has a wealth of suitable shellfish grounds in the water adjacent to its shores. These grounds remain a valuable resource that should be protected. Oyster harvests in Virginia have nearly doubled since 2008 (*VMRC, 2017*) and the number of oysters being sold by aquaculture oyster growers in Virginia have gone from 10 million oysters to well over 40 million. Lancaster County is well situated to play a large role in this industry as well as benefiting from the ecological services these filter feeders provide.

4. Threats to Surface Water Quality

a. Role of Soils in Pollution

Pollutants generally affect water quality through two different methods: run-off and leaching. Run-off refers to water that is not absorbed by the soil, but is instead carried off by natural or man-made drainage courses to a surface water body. Leaching refers to water that is absorbed by the soil and percolates into the soil layers underneath. The effect of this type of pollution is usually felt on the groundwater supply in the water table aquifers, but not the artesian aquifers. The amount of run-off or leaching in a community is usually dependent on the present land cover. Generally, the more heavily an area is developed, the more susceptible the area is to run-off due to increased amounts of impervious land cover such as parking lots, buildings, and roads. The less intensely an area is used, the more the area is prone to leaching because of the extensive pervious groundwater recharge areas such as large tracts of farmland and forest.

Impacts from run-off and leaching are further complicated by the types of soils present in different areas of the County. Highly erodible soils have the potential to become a source of pollution in times of large run-off such as heavy rainstorms and melting periods after ice or snowstorms. This combination of a high amount of run-off and the presence of highly erodible soils can result in a higher concentration of sediments entering the county's surface waters. Furthermore, individual occurrences of pollution through leaching can be worsened through the presence of highly permeable soils. Awareness of these soil properties as they relate to existing and future land uses can help in pinpointing areas currently in need of mitigation efforts, as well as planning for the avoidance of further contamination of water resources through improper land use.

Lancaster County Soils that are highly erodible and the percent of each soil type:

1. Caroline very fine sandy loam, sloping eroded (0.17%)
2. Caroline clay loam, sloping, severely eroded (0.05%)
3. Caroline clay loam, strongly sloping, severely eroded (0.18%)
4. Craven silt loam, sloping, eroded (0.02%)
5. Craven clay loam, strongly sloping, severely eroded (0.21%)

6. Kempsville fine sandy loam, sloping, severely eroded (0.09%)
7. Matapeake silt loam, strongly sloping, eroded (<0.01%)
8. Sassafras fine sandy loam, sloping, severely eroded (0.46%)
9. Sassafras fine sandy loam, strongly sloping, eroded (0.07%)
10. Sassafras fine sandy loam, strongly sloping, severely eroded (0.08%)
11. Sloping sandy land (9.26%)
12. Steep sandy land (18.13%)

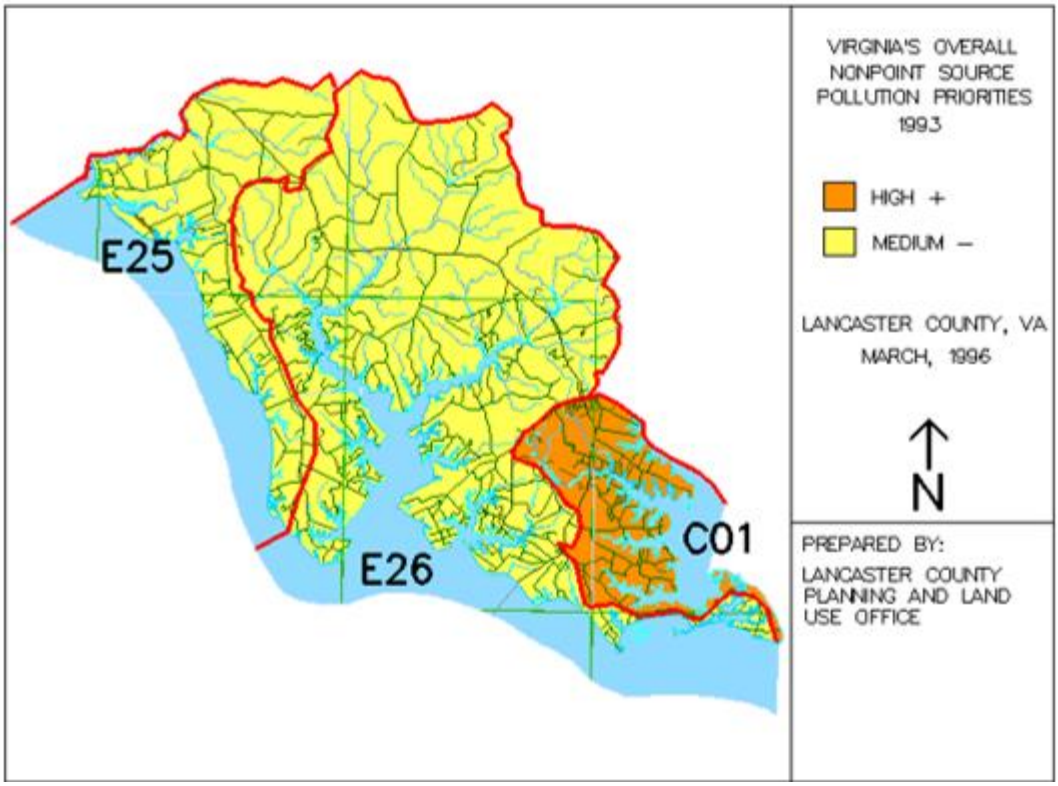
Lancaster County Soils that are highly permeable and the percent of each soil type:

1. Coastal Beach (0.48%)
2. Lakeland loamy fine sand, gently sloping (0.61%)
3. Rumford loamy sand, gently sloping (0.16%)
4. Rumford loamy sand, sloping, eroded (0.05%)
5. Sloping sandy land (9.26%)
6. Steep sandy land (18.13%)

b. Sources of Surface Water Pollution

(1) Non-point Source Pollution

One measure of the effect of pollution on the water quality of Lancaster County's surface water is found in the Virginia Non-point Source Pollution Watershed Assessment Report (VA Department of Conservation and Recreation; March, 1993). This report divides the State of Virginia into 491 different watersheds or hydrologic units. A watershed is defined as "a land area drained by a river/stream or system of connecting rivers and streams such that all water within the area flows through a single outlet." There are three state hydrologic units in Lancaster County: E25, E26, and C01. E25 and E26 are part of the Rappahannock River Basin and C01 is part of the Chesapeake Bay Coastal Basin as shown on the following map from the Virginia Department of Conservation and Recreation**.** This report compares water quality of hydrologic units throughout the state in order to prioritize nonpoint source pollution protection efforts.



c. State Hydrologic Units in Lancaster County

A brief summary of watersheds in Lancaster County is given below:

E25 - This watershed is cited as having "significant levels of urban use impacts due to urban erosion and nutrient loading, and the amount of disturbed urban land." However, this watershed is not described as having any significant water quality violations for fecal coliforms or pH levels. The state monitoring authority gives this watershed a final non-point source pollution rank of "MEDIUM -", with a rank of "High+" being the highest priority watersheds for state non-point source pollution protection efforts.

E26 - This watershed is not described as having any significant water quality violations due to fecal coliforms or pH level. Additionally, this watershed is not cited for having "significant levels of urban use impacts." The state monitoring authority gives this watershed a final nonpoint source pollution rank of "MEDIUM -", with a rank of "High+" being the highest priority watersheds for state non-point source pollution protection efforts.

C01 - This watershed is rated as a "medium priority watershed for agricultural non-point source pollution concerns. Due primarily to existing development, watershed C01 is rated in the top 10% statewide for urban pollution potential." Additionally, the watershed is cited as having a

large number of shellfish condemnations because of "urban non-point source influences." However, the watershed was not cited for having any significant violations of state water quality standards. The state monitoring authority gives this watershed a final non-point source pollution rank of "High+," with a rank of "High+" being the highest priority watersheds for state non-point source pollution protection efforts.

(2) Point Sources/Permitted Discharges

Point source pollution sources are often referred to as the "end of the pipe" type of pollution. This means that the discharge into the water body can be traced to a single, identifiable source. The Federal Water Pollution Control Act requires a uniform permit program nationwide which acts to regulate this type of pollution. In Virginia, the Department of Environmental Quality runs a permitting program named the Virginia Pollutant Discharge Elimination System (VPDES) that carries out the requirements of the federal act. VPDES is a permit program that establishes, on an individual basis, limits on the quantity and/or concentration of pollutants allowed in the discharge.

When a VPDES permit is issued, guidelines are established which discharged effluent is required to meet. Moreover, the owner of the discharging facility is required to monitor the quality of the effluent and report the results of testing to the state. Additionally, the Virginia Department of Health designates condemned shellfish areas around certain point source discharges to act as a buffer zone from the impact of the discharge. The chief industry utilizing these types of permits in Lancaster County is the seafood industry, with resort hotels a distant second.

(3) Septic Systems/Sewage Disposal

Approximately 89% of all private residences in Lancaster County utilize septic systems for sewage disposal purposes.

The potential for septic systems causing pollution of surface water bodies can stem from the initial improper siting of the system, or from the failing of aged or not properly maintained systems. Often septic systems have been placed in soils that can act to heighten the negative impact of the system. In soils with seasonally high water tables, the water table can rise into the septic systems' drain fields and intermix with the relatively untreated effluent. Furthermore, high water tables can cause pooling of septic effluent on the ground surface. During a rainstorm, pooled effluent can then quickly drain into nearby surface water bodies.

Highly permeable soils also can act to increase negative impacts of septic systems. These soils allow septic effluent to percolate more quickly

through soils underneath the drain field, while not allowing for proper filtration. If the effluent percolates before it is properly treated then it can become a threat to the ground or surface water that it acts to recharge. The combination of high water tables and highly permeable soils is particularly a problem in densely developed areas close to the county's shoreline. A high number of septic systems in conjunction with poor soil conditions can lead to elevated levels of fecal coliform bacteria in adjacent surface water bodies, which can then result in the condemnation of the area for shell fishing.

The Virginia Department of Health permits engineered systems for marginal soils, but frequent design failures have resulted in regulations to provide for professional maintenance of those engineered systems.

5. Potential of Surface Waters for Future Water Supply

Much of the surface water in Lancaster County is tidally influenced and has saline levels too high to be considered as a potential drinking water source without reverse osmosis treatment. Additionally, in the upper reaches of the creeks where the water is fresh enough to be used for drinking water, there is not enough stream flow to allow for direct intakes from the water body. However, at the headwaters of these creeks there are a number of existing millponds. Furthermore, with improved, higher impoundment structures there is the potential to create larger ponds or reservoirs. The existing millponds, or the potential new ponds, could be possible surface drinking water sources, subject to the Joint Permit Application review process for activities in the waters and wetlands of the Commonwealth of Virginia.

In 1973, the Northern Neck Planning District Commission conducted a water and sewage facilities plan for the Northern Neck that, until determined otherwise, remains valid in **2019** (Water Quality Management Plan - Planning District 17. Northern Neck Planning District Commission and Deward M. Martin and Associates, Inc.; Callao, VA: 1973). This plan recommended several possible impoundment sites for each of the counties of the Northern Neck. In most cases the proposed impoundment sites roughly coincided with existing millpond locations at the headwaters of the creeks. However, the proposed impoundments were usually larger than the existing millponds, with new impoundment structures located a little further downstream than the existing structures. Seven possible impoundment sites were identified in Lancaster County. They included:

Reservoir #: LBBI	Streams: Balls Branch, Lancaster Creek
Reservoir #: LCMI	Streams: Kamps Millpond
Reservoir #: LLBI	Streams: Little Branch, Corrotoman River
Reservoir #: LLB2	Streams: Little Branch, Corrotoman River
Reservoir #: LMSI	Streams: McMahon Swamp, Corrotoman River
Reservoir #: LMS2	Streams: McMahon Swamp, Corrotoman River
Reservoir #: LCRI	Streams: Upper West Branch Corrotoman River

Precise locations and boundaries for these reservoir locations can be viewed in the Future Land Use Map found in Chapter 7. The engineering drawings are available at the Northern Neck Planning District Commission.

Due to the extreme difficulty of getting permits for reservoirs and the lengthy process involved, it is recommended that the county review the projected sites for their consistency with the development of population centers since 1973 and explore other sources of water such as water reuse and desalinization. Long term planning is highly desirable for such a complex subject.

B. GROUNDWATER

There are two types of aquifers and three types of water well construction in the County. An aquifer is an underground source where water can be pumped out of sediment to be used on the surface. It is not an underground river or lake. An aquifer which gets its water from rain and snow melt infiltrating the ground is called a “water table” aquifer because it hits a clayey layer which forms the bottom of the aquifer. An “artesian” aquifer is under pressure from confining layers of sediment above and below the aquifer. Thus when a well is drilled into this aquifer, the water shoots up in the well, sometimes coming above land surface. Flowing wells are no longer common in the area. Water pumps are set at the level to which the water rises rather than at the bottom of the well. Wells in the water table aquifer can be dug by hand or bored with a well rig. They are recognizable by their large diameter (24-48 inches). Artesian wells are drilled.

1. Groundwater Structure

As stated previously, Lancaster County residents are 100% dependent on groundwater for their drinking water supplies. Lancaster County's groundwater resources come from an underground system of aquifers that reflect the geology of the Coastal Plain Region of Virginia. Underground, the coastal plain is made up of unconsolidated gravels, sands, silts, and clays in addition to variable amounts of shells. This mixture of deposits rest on an underground rock surface called the basement, which slopes gently eastward. The basement rocks actually come out of the earth's surface at the fall line of the rivers, which is the dividing line between the Piedmont and Coastal Plain Regions of Virginia. As a point of reference the fall line of the Rappahannock River is at Fredericksburg, the fall line of the James River is at Richmond, and the fall line of the Potomac River is at Washington, DC. At the fall line the thickness of the coastal plain sediments is zero; however, going east from the fall line the basement rock slopes down and the coastal plain sediments become thick. At the coastline the coastal plain sediments are over 6,000 feet thick and continue to deepen under the continental shelf.

In 2006 the United States Geological Survey and the Virginia Department of Environmental Quality published a report of the aquifer system with maps of the approximate depth for each aquifer. These are based on far more extensive knowledge than was available for earlier hydrogeological reports. The study is available on line as U.S.G.S. Professional Paper 1731, The *Virginia Coastal Plain Hydrogeologic*

Framework. Copies of the aquifer maps are also available at the Lancaster County Planning and Land Use Office and the Lancaster County Health Department. The depths are presented from sea level, so it is necessary to add the altitude to get the depth for a well being drilled from the land surface. This data dramatically changes much of our understanding of groundwater sources. Artesian aquifers do not have significant recharge sources that can keep up with our current use.

Additional research data is being gathered at the state monitoring well station built in Northumberland County with information being transmitted to U.S.G.S. computers every 15 minutes from wells for each of the five aquifers. Data is available on line.

Contained in the Coastal Plain sediments are a system of underground aquifers, or water-bearing units. Aquifers are recharged at the fall line, except for the Potomac that is not recharged directly from the land surface. The Potomac aquifer offers the best source of potable water.

Each aquifer is separated from those above and below by clay confining beds, from which they get the name, confined aquifers. These confining beds act to trap the water in between, allowing water to escape up and down only at very slow rates. When the aquifers are tapped by a well, the pressure enhances the flow of the water upward. Throughout the Coastal Plain there is also an unconfined, water table aquifer. The water table aquifer is found between the ground surface and the top of the first confining bed. This aquifer is not pressurized and is the one used by shallow wells. This aquifer is recharged at ground surface level by rainwater and below the ground surface by water bodies such as creeks and rivers. Because this aquifer is unconfined and recharges from the surface, it is very susceptible to contamination. Anything that permeates the ground surface can quickly reach the water table aquifer.

Wells in Lancaster County tap five underground aquifers. Shallow wells utilize the Columbia and Yorktown-Eastover Aquifers, which are the water table aquifers. Deep wells, or artesians, tap the Chickahominy-Piney Point Aquifer and the deeper Potomac Aquifer. Detail on each of these aquifers is given below.

a. Columbia Aquifer (Water Table)

The water table aquifer in the higher elevated parts of the western and central, and throughout the entire eastern section of Lancaster County is actually an aquifer named the Columbia. The Columbia Aquifer is used as a drinking water supply. Sources of recharge are rain, ice, and snow.

Since the aquifer recharges primarily from the surface, it is very susceptible to contamination. Septic system discharge, agricultural and lawn fertilizers, leaking underground storage tanks, and improper disposal of hazardous home waste can cause contamination of this aquifer. However, the possibility of contamination from this aquifer to artesian aquifers is essentially negligible. Existing water table wells generally have inadequate construction standards and thus water from these

wells often fails tests for potability. It is possible to install treatment equipment designed for bacteria. Construction standards adequate to secure the sanitation of these wells have been demonstrated by SAIF Water Wells, Inc. and can be viewed on the website www.saifwater.org.

The groundwater supplies of the Columbia Aquifer usually fluctuate according to the seasons of the year. Graphs of water level variations in two water table wells charted by SAIF Water Wells, Inc. over a period of several years are available at www.saifwater.org.

Water samples from some wells in this aquifer have elevated levels of nitrate, above the Maximum Contaminant Level recommended by the U.S. Environmental Protection Agency. High nitrate concentrations in groundwater are the result of human activities, especially agricultural fertilization practices and septic systems.

b. Yorktown-Eastover (Unconfined, Water Table and Confined)

The Yorktown-Eastover Aquifer lies below the water table aquifer and is sometimes a confined artesian aquifer and sometimes in direct interchange with the water table aquifer. It is not possible to tell in advance of drilling which it is in any location. Therefore, the Department of Environmental Quality advises that it should be regarded as likely to be subject to surface contamination. Other problems which make this an unwise choice for water supply are heavy iron bacteria and sandy conditions which may make the well unserviceable in short order.

The Yorktown-Eastover Aquifer is not used heavily in Lancaster County.

c. Chickahominy-Piney Point Aquifer (Confined)

This confined aquifer is located approximately 200-425 feet below the ground surface in Lancaster County and averages 50 to 100 feet in thickness throughout its reach, with a maximum thickness of 140 feet in Lancaster County. Supply in this aquifer is not as susceptible to decreases due to local drought conditions. Hydrogen sulfide gas frequently gives water from this aquifer a sulfur smell. This can be minimized at the time of drilling with the correct storage tank, micronizers and/or bleedbacks in the water line. Treatment equipment is available for an existing well, but at considerable cost.

Water in this aquifer contains concentrations of sodium, dissolved solids, and fluoride, which decrease while moving west in the aquifer. Specifically, sodium concentrations exceed 20mg/L throughout most of the aquifer, fluoride concentrations exceed 2mg/L in the south-central part of the aquifer, and concentrations of sulfate, chloride, and dissolved solids exceed the U.S. EPA Secondary Maximum Contaminant Level in the eastern part of the aquifer (Pgs.

13, 14, and 15, USGS WRI Report 92-4175). See also U.S.G.S. Professional Paper 1772 Groundwater-Quality Data and Regional Trends in the Virginia Coastal Plain, 1906-2007 which is available on line.

d. Aquia Aquifer.

The Aquia Aquifer lies between the Piney Point and Potomac Aquifers, but is generally not considered a good source for water wells, as it is thin.

e. Potomac Aquifer (Confined)

This aquifer is located approximately 525-820 feet below the ground surface in Lancaster County. This aquifer has no significant source of surface recharge. Recharge occurs in much smaller amounts from vertical seepage between aquifers and along existing well conduits. This aquifer is not as prone to contamination as the water table aquifer. Supply of this aquifer is not susceptible to decreases due to local drought conditions either.

Certain parts of the county utilizing this aquifer have higher concentrations of sodium and fluoride in their drinking water. Sodium levels are approximately 230 mg/L in White Stone, 300 mg/L in Palmer, 400 mg/L in Foxwells, and as high as 500 mg/L at Windmill Point. Sodium levels in the artesian aquifers in the entire County exceed the USEPA advisory limits for persons with health conditions requiring limitation of sodium intake. The Virginia Department of Health has issued a fluoride alert for our area. It is recommended that the owners of artesian wells have their water tested for fluoride before using supplemental fluoride for children. Water table wells generally do not have high fluoride levels.

(1) Effects of Drawdown in the Potomac Aquifers

The Potomac Aquifer is heavily tapped for deep/artesian well supplies in Lancaster County and regionally. The aquifer is a principal source of groundwater for municipal, industrial, and agricultural use in the York-James, Middle, and Northern Neck Peninsulas of Virginia. In 2004 the Maryland Geological Survey released a report on the need to assess the sustainability of the Ground-water Resources in the Atlantic Coastal Plain and in 2006 began a cooperative effort with the U.S. Geological Survey (development in Maryland draws from aquifers shared with the Northern Neck of Virginia).

Due to heavy use there has been some regional draw down in the aquifer throughout the Coastal Plain Region. Draw down is caused by the withdrawal of large amounts of groundwater from the confined aquifers. The result of draw down is that water levels in the confined aquifers have declined and the underground flow of water has changed. This situation presents future problems for Lancaster County deep well users.

Several United States Geological Survey reports have studied the Coastal Plain groundwater aquifers, as well as the effect of drawdown caused by heavy pumping. According to one report, the decline in the level of water in the aquifers has changed the direction of ground-water flow toward the major pumping centers. When considering the Potomac Aquifer, these centers are located near the cities of Franklin, Williamsburg, Suffolk, and Alexandria and the towns of West Point and Smithfield.

Lastly, groundwater supplies that used to travel all the way to the coast to recharge surface water bodies with fresh water get detoured before they reach the surface water bodies. Impacts of this situation on the water quality of the Chesapeake Bay and its tributaries are unknown. (Specific data on water levels in wells monitored in Lancaster and surrounding counties by the United States Geological Survey, documentation of artesian aquifer recharge areas and declining water supplies, as well as a list of major water use areas can be seen in Appendix VII.)

2. Existing And Projected Demand For Groundwater in Lancaster County, VA

In 2010 there were 11,391 people in Lancaster County**.** Using a weighted average usage of 93 gallons per day for all citizens, countywide consumption was 1.06 MGD (million gallons per day). If local population increases, this daily demand will likely increase, as well.

New large commercial users, any one of which could use as much as all of Lancaster County combined, may very well affect overall availability. The Northern Neck is included in the Eastern Virginia Groundwater Management Area, which covers all areas east of Interstate 95 and west of the Chesapeake Bay. Any person or entity in this area must obtain a permit to withdraw 300,000 gallons or more of groundwater in one month.

3. Threats to Groundwater Supply

a. Septic Systems/Sewage Disposal

As discussed previously in the "Surface Water Section," individual homeowner sewage disposal systems can act to negatively impact groundwater supplies. The aquifers most susceptible to contamination from individual sewage disposal systems are the Columbia and the unconfined water table part of the Yorktown-Eastover. Localized soil conditions such as high water tables and highly permeable soils in conjunction with large concentrations of septic systems can threaten the quality of the water table aquifers.

An additional concern is the approved engineered wastewater treatment systems.

This is even more imperative given that these systems are almost always placed in areas with high water tables and/or percolation problems. Recent regulations by the Virginia Department of Health require monitoring and adequate maintenance of these systems.

b. Underground and Aboveground Storage Tanks

According to the Department of Environmental Quality's Underground Storage Tank database there are approximately 326 regulated underground storage tanks in Lancaster County (Local Inventory of Regulated Underground Storage Tanks can be viewed at the Lancaster County Planning and Land Use Office). Additionally, many people in the county have unregulated storage tanks which contain fuel for the home heating source or their personal vehicles. These underground storage tanks can be a possible source of contamination for groundwater in Lancaster County.

Regulated storage tanks in the county are all tanks over 110 gallons, except for residential/non-commercial tanks less than 1,100 gallons, farm tanks less than 1,100 gallons, and residential/commercial heating fuel tanks less than 5,000 gallons. Therefore, regulated tanks are generally the tanks found at most gas stations, convenience stores, and automobile distributors in the county. Current state regulations have strict requirements for the operation of regulated underground storage tanks. First, these tanks must be protected from corrosion if they are to be placed underground. Second, owners and operators of new and existing tanks must provide a method, or combination of methods for release detection. Additionally, these tanks are required to be monitored periodically by the owners for leaks. Lastly, the owner and operator must report, investigate, and clean up any spills and overfills in accordance with state regulations.

Residential underground storage tanks are not regulated by the Department of Environmental Quality. Most leaks are discovered and taken care of by the owners of the tanks. Information available from local oil companies suggests that problems with leaks are only found in areas with low groundwater tables. In areas with high water tables, water leaks into leaking tanks instead of fuel leaking out. Leaks in these cases will often be detected when water levels in the tank cause the
owner's furnace or heating source not to light. However, in areas with low water tables, fuel will often leak out and down when a leak occurs. Leaks in these cases will be detected only by noticing a drop in tank levels, or an increase in the usage of the fuel. The percentage of these tanks located underground is undetermined.

Aboveground storage tanks for home heating oil have also proven to be a serious hazard to water wells drawing from the surface aquifer. Even when the tank is secure, leaks around the valve and oil line have contaminated water wells beyond repair. Currently a program exists under the Virginia Department of Environmental Quality to replace water table (large bore) wells contaminated by

fuel oil with artesian wells.

c. Uncapped/Abandoned Wells

Uncapped and abandoned wells are potential sources for groundwater contamination. These wells act as direct conduits to the groundwater supply. Disposal of waste into these wells can quickly lead to contamination. Abandoned artesian wells may allow direct access to deep aquifers. Census figures for Lancaster County indicate that there are possibly several hundred wells in the county that are no longer used but have not been properly abandoned. Procedures for abandoning a well are established by the Virginia Department of Health and can be costly.

d. Improper Disposal of Household Hazardous Waste

Due to tightened regulations and prohibitive costs, many rural counties no longer operate their own landfills to dispose of solid waste. In the Northern Neck each of the four counties have switched to waste transfer types of waste collection and disposal. In Lancaster County, waste and recyclable material are collected at three transfer sites. Waste collected at these sites is then carried by a waste carrier to a large regional landfill in King & Queen County. Furthermore, marketable recyclable materials such as cardboard, paper, aluminum, and glass collected at these sites are sold by the county to generate revenue to support the costs of operating the collection centers.

However, due to limitations on the type of waste accepted by the regional landfill and the high costs of collection and proper disposal of household hazardous waste, there is a limited system in place for citizens to dispose of this type of waste. Lancaster County accepts household hazardous waste at the solid waste collection sites two Saturdays a year, one in the spring and one in the fall. Household hazardous waste can include used motor oil, paint thinners, solvents, antifreeze, etc. These limited options can lead homeowners to choose improper means for disposing of this type of waste, which in turn becomes a threat to groundwater supplies.

II. ASSESSMENT OF EXISTING CONDITIONS

A. SURFACE WATER

Lancaster County is fortunate to have large areas of surface water within its boundaries. Overall, the condition of these surface waters is good; however, there are some areas for concern. Non-point source pollution has caused some degradation of water quality in the E25 (Corrotoman River) and C01 (Chesapeake Bay) watersheds. The E25 watershed was cited as having significant levels of urban use impacts due to urban erosion and nutrient loadings, and the amount of disturbed land. This type of pollution can be attributed to new home or business construction, particularly on the water. The C01 watershed was

cited as having a large number of shellfish condemnations due to urban non-point source influences. This type of pollution can be attributed to high densities of septic systems, or a number of failing septic systems located close to surface water. The C01 watershed also was negatively impacted from agricultural non-point source pollution. However, despite being mentioned for these specific non-point source pollution impacts, none of the three watersheds were cited as having violations of state water quality standards.

Lancaster County's surface water resources also have potential, although limited, for use as a future potable water supply. In the County, there are no smaller fresh water streams that have suitable flow to allow for raw intake for drinking water purposes. Furthermore, saline conditions in the larger tidal portions of the County's surface water bodies make them unsuitable as a supply for drinking water. However, the County does have a large number of existing, privately owned millponds, as well as other possible locations for impoundment of fresh surface water supplies.

The existing millponds already serve an important function, since they act as areas of recharge for water table aquifers. Furthermore, the existing millponds are generally located at the headwaters of streams or creeks, and many have sparsely populated areas surrounding them. With enlarged impoundment structures, these millponds could be potential surface water supplies for drinking water. Lastly, all the millponds are located upstream of permitted discharges. This situation would prevent discharges from affecting millpond or reservoir waters.

B. GROUNDWATER

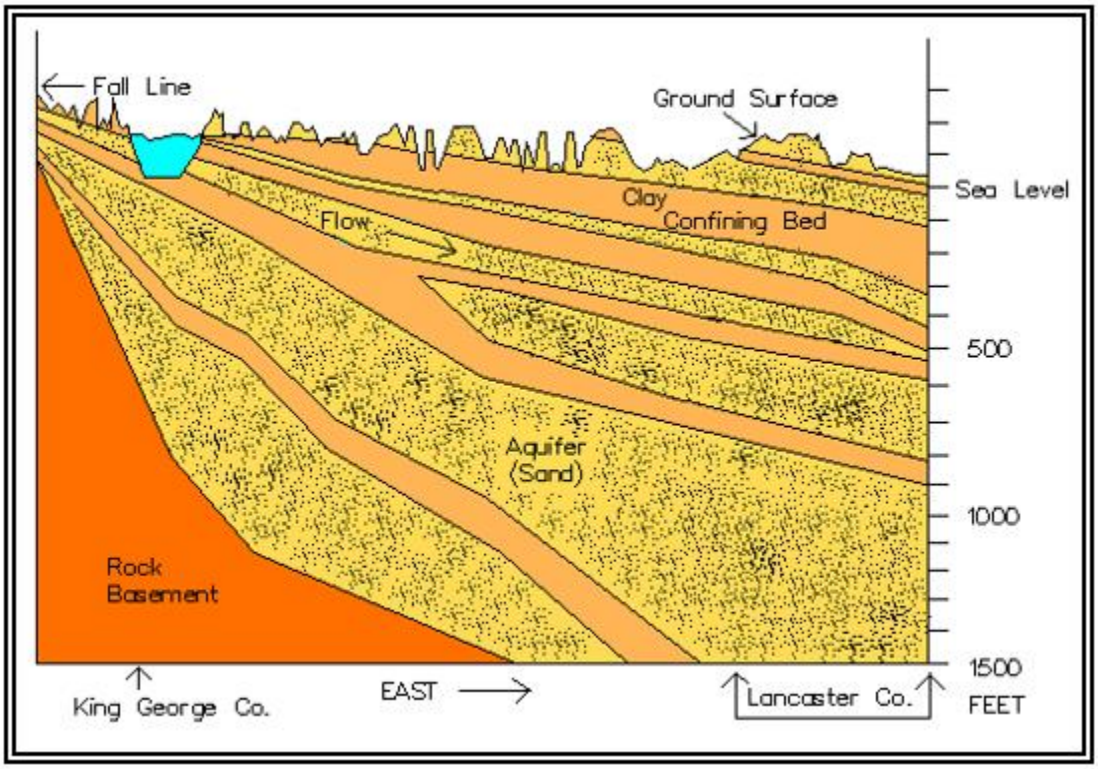
A technical presentation of aquifers under Lancaster County is available in *United States Geological Survey Professional Paper 1731, The Virginia Coastal Plain Hydrogeologic Framework* which is available on line. Plate 3, section CD-CD' is the map containing Lancaster County. A print copy of aquifer maps is available at the Lancaster Department of Health's Environmental Services office.

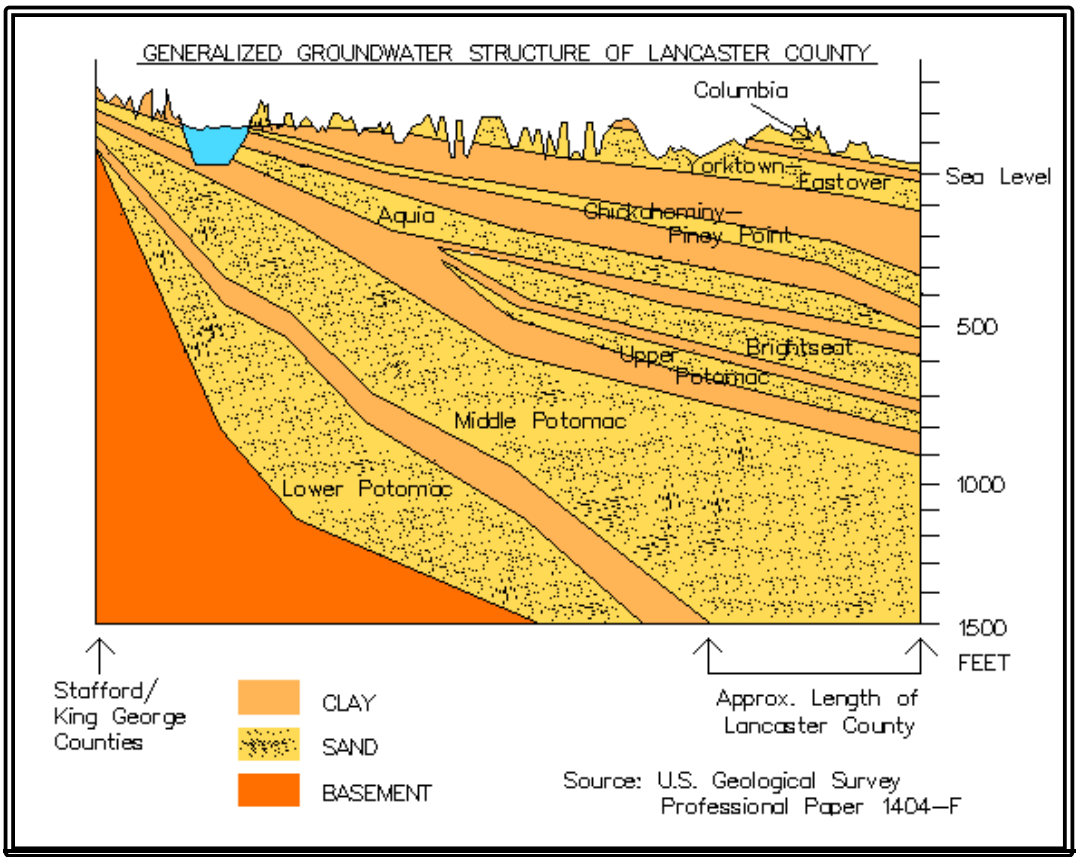
Recent research at the Surprise Hill Monitoring station in Northumberland County by the Virginia Department of Environmental Quality in conjunction with the United States Geological Survey has added to the knowledge of local aquifers. Water quality data on each of the aquifers is being collected there and is available on line at http://waterdata.usgs.gov/va/nwis/current/?type=gw. SAIF Water Wells, a local non-profit organization, has provided a consumer's report of our five aquifers which is available online at www.saifwater.org.

The Columbia is the principal water table aquifer, and the Yorktown-Eastover draws from the water table aquifer at some points and from a confined artesian aquifer at other points. The main users of the water table aquifers are owners of hand dug and machine bored wells. The water table aquifers are the most susceptible to pollution, and the recharge area is the land above the aquifers in Lancaster County. Direct threats include septic systems, underground storage tanks, improper disposal of hazardous home waste (oil, gas, etc.), and abandoned, uncapped wells. It has been the experience of SAIF

Water Wells in investigations and laboratory analyses of hundreds of water table wells that the primary causes of pollution are inadequately constructed and maintained wells and general lack of knowledge on the part of homeowners and plumbers as to what is needed to protect the water supply. Holes are often quite visible in the well curbs and caps, and interior inspections reveal unsealed damage from the installation of pipes.

Recent studies conclude that regional drawdowns due to heavy pumping of the deeper confined aquifers should cause concern and warrant further study. Specific plans for a more diverse water supply to include the use of surface water, or reservoirs will be made.





III. POTABLE WATER SUPPLY PLAN

A. GROUNDWATER

1. Water Table Wells

In Lancaster County, the water table aquifers are those most susceptible to contamination. Failing septic systems, agricultural fertilizers, hazardous home wastes, etc. can act to pollute water table aquifer resources. It is the responsibility of the well owner to obtain laboratory tests. Currently Virginia only requires a passing coliform bacteria sample to consider the water potable. "Potable" simply means it is reasonable to drink it. Coliform bacteria is not a health hazard, but simply a convenient way to indicate that other bacteria may be present that are potentially harmful. Because these wells are affected by rainfall and pollutants on the surface, bacteria levels may vary. Failure of a single sample is not adequate justification for condemning the well. Water purification equipment for the drinking water is a viable alternative. The well owner may wish to also test for nitrate and pesticides.

2. Abandoned Wells

The county will undertake a parcel specific inventory of all abandoned wells in the county. After wells are identified, an informative mailing will be prepared to send to each property owner with an abandoned well. The mailing will caution owners to protect the

well area and not to use it for disposal of solid or liquid waste. Furthermore, it will ask the owners if they would be interested in participating in a countywide permanent well abandonment.

3. Household Hazardous Waste Collection Day

To provide further protection to the County's groundwater resources Lancaster County has established a recurring Household Hazardous Waste Collection Day. This event is held at the existing solid waste refuse sites that, while currently done semi-annually, could be done on a more frequent basis as need dictates. The County obtains the services of a certified waste disposal contractor who has proper authorization to handle and dispose of this type of waste. The event is widely marketed to the public, and on this particular day Lancaster County residents are allowed to properly dispose of a reasonable amount of household hazardous waste at no cost. A charge is only applied when the amount offered for disposal exceeds a set level.

4. Groundwater Management Area (GMA)

Lancaster County is a part of the Eastern Virginia Management Area as of June 4, 2014 *(9 VAC 25-600-20).*

The County will encourage conservation efforts on the part of current and future users. Any future golf courses will be required to develop plans that include surface or recycled water sources for their needs rather than being totally dependent on groundwater withdrawals.

5. Drilling Test Monitoring Wells

To expand existing knowledge of the groundwater resources of Lancaster County and the Northern Neck, the County endorses recommendations made by the Department of Environmental Quality (then the State Water Control Board) to establish monitoring wells in Lancaster County and the Northern Neck. Additional monitoring wells are desirable to provide a more adequate information base on the decline of water in the artesian aquifers and possible tapping of deeper aquifers.

6. Regional Water Supply Plan

The 2003 Virginia General Assembly identified the need for a regulation for comprehensive water supply planning to protect water supplies for the future economic vitality and public health of the Commonwealth. The Virginia State Water Control Board responded to this mandate and adopted regulations on June 28, 2005 requiring all local governments and regional entities to prepare local and/or regional water supply plans. The Northern Neck Planning District Commission (NNPDC) and its ten localities supported meeting this legislative and regulatory requirement by developing a regional plan. The NNPDC retained the services of EEE Consulting, Inc. in Blacksburg, VA to assist in this effort.

On August 25, 2011, Lancaster County approved the Northern Neck Regional Water Supply Plan which includes a description of existing water sources, existing water uses, and existing water resource conditions; an assessment of projected water demand; a description of water management actions including drought response, contingency plans, and other water demand management information; a statement of need and an analysis that identifies alternatives to address projected water supply deficits; and maps identifying important elements of the plan such as existing water resources, proposed new sources, and significant existing water uses.

B. SURFACE WATER

1. Inventory Septic Systems

As part of the effort to ensure continued protection of Lancaster County's Surface and Groundwater Resources, the County is exploring resources to inventory and map existing septic systems. This effort would help to pinpoint high concentrations of septic systems in the County, which could act cumulatively to deteriorate the quality of Lancaster's surface and groundwater supplies. Information obtained from this inventory will be valuable in developing a future land use map for Lancaster County. Additionally, once compiled this information would aid in any future efforts to identify and prioritize areas for efficient placement of a wastewater treatment plant. Inventories done to date have included only permitted systems and do not account for systems placed prior to 1985.

2. Identify Possible Impoundment Areas

Lancaster County will take action as necessary to ensure that potential reservoir sites are protected for use as such. This step will take priority in its own right without waiting for any further coordinated efforts.

3. Continue Present Enforcement Levels

To ensure continued protection of the quality of Lancaster County's surface water bodies, the County will continue its present, active enforcement of the Erosion and Sediment Control Act and the Chesapeake Bay Preservation Act, which requires that all septic tanks be inspected and/or pumped at least once every five years.

IV. GOALS AND OBJECTIVES FOR LANCASTER COUNTY POTABLE WATER SUPPLY PLAN

GOAL #1: **Protect and improve quality of surface waters of Lancaster County to ensure their continued benefit to the economy, recreation, and health of the County.**

Objective: Continue strict enforcement of the Chesapeake Bay Preservation Act and Erosion and Sediment Control Act Regulations to ensure protection of the water quality of the Chesapeake Bay and its tributaries.

Objective: Explore possible water impoundment areas presented in this plan for Lancaster County and determine which are appropriate for the distribution of population and development that has occurred since the initial engineering study.

Objective: Develop strengthened county ordinances to ensure protection of proposed impoundment areas.

GOAL #2: **Develop methods to prevent groundwater pollution in order to protect the supply of groundwater in Lancaster County and to ensure that an adequate future supply exists for the continued growth of the County.**

Objective: Encourage the upgrading of well structure, removal of environmental hazards near wells, wellhead protection measures, and regular laboratory analyses of water samples.
Objective: Develop a method of collecting waste oil in the county to give residents a safe disposal option.

Objective: Discourage the placement of water table wells near agricultural operations.

Objective: Discourage the installation of wells in the Yorktown-Eastover Aquifer. Classify all wells in this aquifer as "water table" rather than "artesian" regardless of the drilling method used.

Objective: Collect and analyze data that will show the impact on Lancaster County of draws from the aquifers in other jurisdictions.

Objective: Encourage the use of better construction methods for bored wells which can minimize the potential for bacterial contamination. A video and manual are available at www.saifwater.org showing a model well that has had consistently good results in follow-up sampling.

GOAL #3: **Develop methods to improve and protect groundwater quality in Lancaster County to ensure the continued safe health of the local people and the economy.**

Objective: Work in coordination with existing community organizations and the health department in efficiently utilizing existing local resources to improve drinking water quality.

Objective: Identify possible funding for community well improvements and locate abandoned wells.

Objective: Strongly support Department of Environmental Quality proposals to drill test wells in the county to monitor water quality problems.

GOAL #4: Develop methods to ensure the continued availability of potable water.

Objective: Actively participate in efforts on a state and regional basis to address the issue of over pumping of artesian aquifers by other localities in Virginia and Maryland.

Objective: Support efforts to extend the Eastern Virginia Groundwater Management Area to the Northern Neck and Middle Peninsula of Virginia.

Objective: Explore technology and alternative sources of potable water including water reuse that would enable the County to have diverse sources of water for the future.

Objective: Support water conservation measures through building ordinances.

GLOSSARY OF TERMS

"Shallow well" has been commonly used here to mean a large diameter well that was either machine bored or dug by hand. It is not an adequate technical term for use in this Comprehensive Plan. The United States Geological Survey generally uses the word to mean wells less than two feet deep. Bored wells in Lancaster County may be up to 100 feet deep. The term "water table well" is used herein to refer to wells drawing water from aquifers in unconfined sediment near the ground surface which are fed by rain and snow melt.

Construction methods - Artesian wells in the county have generally been drilled with water pressure and have small diameter pipes. But small diameter pipes are not necessarily tapping an artesian aquifer. This construction method has been used for wells that are actually in the water table aquifer in unconfined sediment that is subject to infiltration from the surface in this area. In some parts of the commonwealth drilled wells with small diameter pipes are less than 40 feet deep.

"Artesian" refers to aquifers that are confined by layers of sediment which keep the water under pressure. When a well is drilled into an artesian aquifer the pressure of the aquifer will

cause the water to rise in the pipes. The County no longer has flowing artesian wells where the water naturally rises above the ground surface. The confining layers prevent contamination from the ground surface.

Terms and measurements used for further understanding of groundwater quality descriptions are listed and detailed below. They have been obtained from the following United States Geological Survey Report:

Water-Resources Investigations Report 92-4175, "Quality of Groundwater in the Coastal Plain Physiographic Province of Virginia." Focazio, Michael J.; Speiran, Gary K.; and Rowan, M. Eileen; U.S. Geological Survey; Richmond, VA: 1993.

Chloride - The U.S. EPA has established a SMCL for chloride of 250 mg/L. (U.S. Environmental Protection Agency, 1990c;) Furthermore, the State of Virginia maintains an antidegradation standard for chloride in groundwater in the Coastal Plain of 50 mg/L (Commonwealth of Virginia, 1988)

Dissolved Solids - This refers to the measure of the concentration of all dissolved material in the water. The U.S. EPA SMCL for dissolved solids is 500 mg/L (U.S. EPA, 1990c). The State of Virginia's antidegradation standard for dissolved solids in groundwater in the Coastal Plain is 1,000 mg/L. (Commonwealth of Virginia, 1988)

Fluoride - The U.S. EPA has established both an MCL of 4.0 mg/L and an SMCL of 2.0 mg/L for fluoride. The State of Virginia enforces a standard of 1.8 mg/L. (Commonwealth of Virginia, 1982)

MCL - This refers to Maximum Contaminant Levels, which is a U.S. Environmental Protection Agency (1990a) designation. Reported MCL's are set for health concerns. This is the maximum permissible level of a contaminant in water that is delivered to any user of a public-water system. These levels are enforceable.

SMCL - This refers to Secondary Maximum Contaminant Levels, which is a U.S. Environmental Protection Agency (1990a) designation. Reported SMCL's are set for aesthetics (such as taste or odor) or for limits on properties that affect use of the water (such as chemical aggressiveness, or potential for the water to deposit solid chemicals). These levels are not enforceable.

Sodium - Presently, there are no Federal drinking water regulations concerning sodium; however, the State of Virginia maintains an antidegradation standard for sodium in groundwater in the Coastal Plain of 100 mg/L. The State also advises that persons on sodium-restricted diets avoid drinking water with sodium concentrations greater than 20mg/L, if the restriction is severe, and 270 mg/L, if moderate.

CHAPTER 4 - SHORELINE PROTECTION STUDY AND PLAN

I. SHORELINE PROTECTION STUDY

Lancaster County is a coastal community having, approximately 330 miles of tidal shoreline. The environment created by this interaction between the land and water along the County's coasts has helped to form our community's identity. Residents who want to live in a scenic setting, citizens who come to the water for recreation, and watermen who earn a living off the rich natural resources found here value this area of land and water. The importance of shoreline areas to the County's citizens for their shoreline is reflected in their desire and actions to protect these areas.

However, action of people to protect the natural shoreline can disrupt an existing delicate balance. Understanding this balance can help decision makers and property owners make the most informed and best possible decisions concerning the protection of the shoreline. This is the goal of the Lancaster County Shoreline Protection Study and Plan.

This section of the comprehensive plan addresses the issues and policies concerning shoreline erosion protection and control measures and investigates the existing shoreline condition while making recommendations based on those findings. This section presents a balanced approach, considering all the factors present when considering shoreline erosion; the natural forces of erosion, the present shoreline condition, the type of water body, and the property owner.

The first key in understanding the County's shoreline resources is to determine how much of the shoreline is eroding and where these sections of shoreline are located. After areas of erosion are determined, the reasons for erosion must be determined. Lastly, property owners' responses to erosion problems, such as treatment of their shoreline, have to be investigated as to their effectiveness and the impact of their efforts.

A. EROSION RATES

The Virginia Institute of Marine Science has created three different categories to group shoreline erosion. The first group is Slight/None, which describes shoreline that is eroding at a rate of less than 1 foot per year. The second group is Moderate, which is shoreline that is eroding at the rate of 1 to 3 feet per year. The third group is Severe, which is shoreline that is eroding at a rate of 3 or more feet per year. Lastly, to suit the needs of the County's Plan, an additional category -- Accretional -- has been added to describe shoreline area that is actually building or increasing over time.

The 2001 Lancaster County Shoreline Situation Report completed by the Virginia Institute of Marine Science grouped the County's waterfront parcels into categories based on their shoreline situation. The results are detailed below:

Slight/None	83%
Moderate	11%
Severe	5%
Accretional	2%

This same report also divides the County into four segments. Highest erosion is in Segment 1 that includes Bay shoreline with rates ranging from 1.6 to 7.9 feet per year. Erosion in remaining segments ranges from 0.0 to 5.1 feet per year. In the 100-year period prior to the first Shoreline Situation Report, 792 acres had eroded from the 43 miles of Bay Shore and 561 acres from the 125 miles of river shore.

B. EROSION FACTORS

1. Fetch and Water Body Energy

The distance wind and waves travel across open water before they reach land is called the "fetch." For example, the fetch across the Chesapeake Bay is over 20 miles in the parts of Lancaster County along the Bay. The fetch across most tidal creeks in the County ranges from a few hundred feet in the upper reaches to ½ to 1 mile near the creeks' mouths. The fetch is important because it is a major factor in the amount of energy a water body generates. The greater the fetch, the greater the amount of wave energy and the greater the potential for erosion.

Low Energy Water Bodies
This category includes the inland part of all the tidal creeks, coves, and upper reaches of rivers in Lancaster County including the following:

Indian Creek
Dymer Creek
Tabbs Creek
Antipoison Creek
Oyster Creek
Mosquito Creek
Carter Creek
Taylor Creek
Upper Western Branch
Myer Creek
Whitehouse Creek
Greenvale Creek
Deep Creek
Mulberry Creek
Lancaster Creek
Upper Eastern Branch
Moran Creek

Medium Energy Water Bodies

Main Branch Corrotoman River
Mouths of Tidal Creeks along Main Branch of Corrotoman River
Little Bay
Rappahannock River above Towles Point
Mouths of Tidal Creeks along Rappahannock River above Towles Point

High Energy Water Bodies

Mouth of the Corrotoman River
Rappahannock River Below Towles Point
Mouths of Tidal Creeks along Rappahannock River Below Towles Point
Fleets Bay
Chesapeake Bay
Mouths of Tidal Creeks along Chesapeake Bay

2. Boat Traffic and Wake

Wakes caused from boat traffic can greatly accelerate erosion on adjacent shoreline. Effects of boat wakes are generally greater in narrow water bodies where the resulting wake has less area to dissipate before it reaches the shoreline and in areas where there is a large amount of boat traffic. Generally, wakes tend to dissipate over larger distances such as major rivers and bays. However, in narrow stretches of water the shoreline usually absorbs the impact of the boat wake.

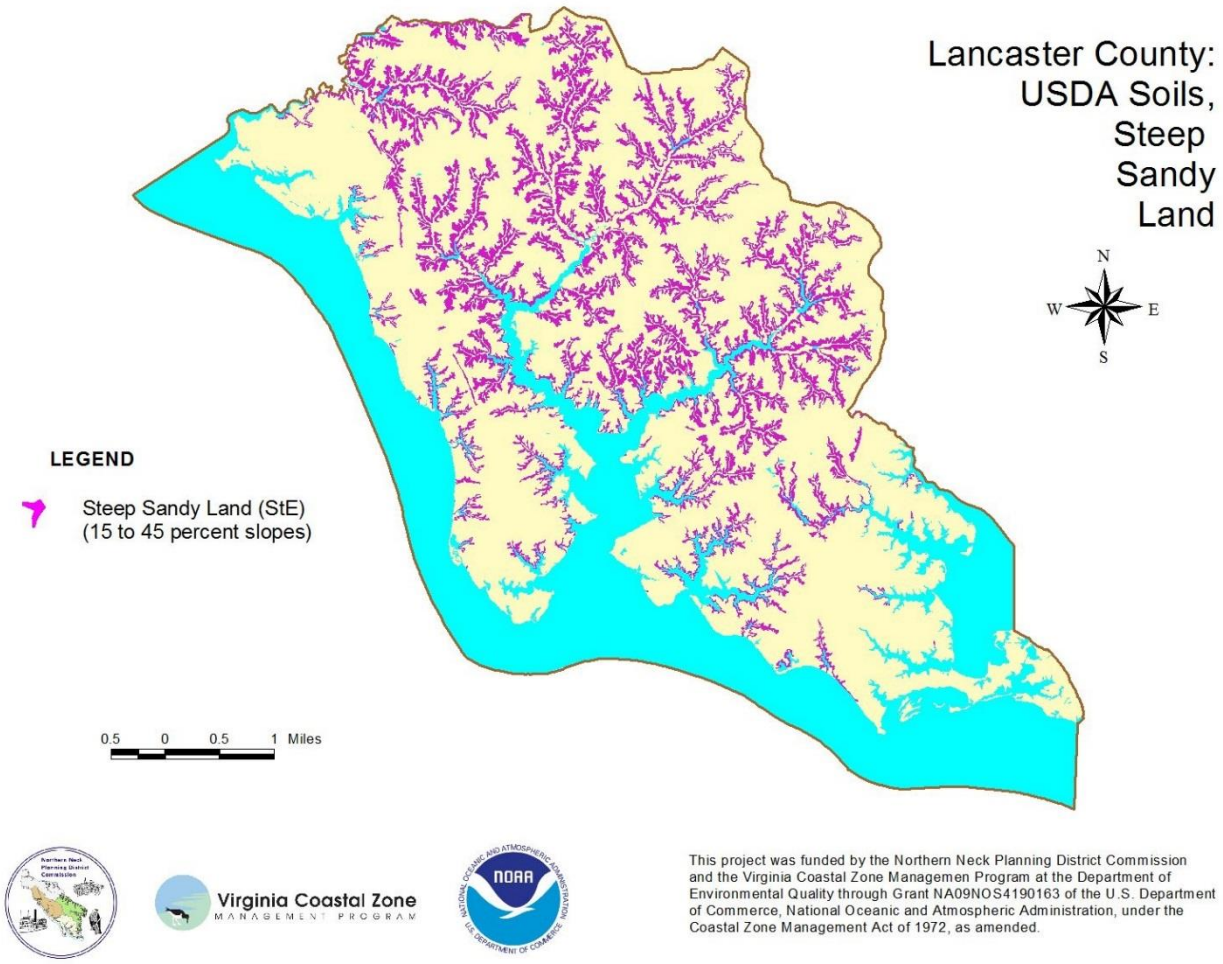
High traffic boating areas in the County include Carters Creek, the Rappahannock River, the main branch of the Corrotoman River, Fleets Bay, and the Chesapeake Bay. Medium areas of boating activity include Myer Creek, Lancaster Creek, Greenvale Creek, Whitehouse Creek, Indian Creek, Dymer Creek, Tabbs Creek, and Antipoison Creek.

3. Existing Shoreline Condition

a. Topography and Soil Type

The topography of the shoreline plays a large role in how the shoreline erodes. Large shoreline bluffs adjacent to the water can be threatened by wave scour at their base and seepage of groundwater along their faces. The base of the bluff is weakened and soil that is saturated with groundwater collapses downward and "sloughs off." This trend will continue until the bluff's base is protected and the face is stabilized.

Steep areas along many upper reaches of Lancaster County's tidal water and shoreline are naturally stable, but may be destabilized when development occurs. These areas, which can be difficult to re-stabilize, tend to be present where there is the existence of steep land and sandy soils. Sandy soil types are found throughout Lancaster County and make up approximately 28% of the county's soil. These soils are generally found along natural drainage courses along upper or inland reaches of tidal creeks and smaller tidal rivers as depicted on the following map:



b. Natural Protection

Existing vegetation along the shoreline can act to stabilize erosion of the shoreline. Additionally, wetlands adjacent to the shoreline can act as a buffer or baffle that can protect the shoreline. Barrier island beaches and sand spits can also act to absorb wave energy before it reaches the shoreline of the mainland. Lastly, Submerged Aquatic Vegetation can act to slow and dissipate wave energy before it reaches the shore.

c. Man-made Protection

Altered shoreline can act to prevent erosion at the point where the shoreline is altered. However, the alteration of the shoreline in one location usually acts to increase erosion in areas down drift of the altered shoreline area. Natural erosion of land results in sediment loss that acts to nourish down drift shoreline. When a shoreline is altered, this natural supply of nourishment is lost.

C. SHORELINE ALTERATION

Shoreline is altered by the construction of erosion protection structures on, adjacent to, or abutting the shoreline. These artificial stabilization structures include bulkheads, revetments, breakwaters, groins, and jetties.

Alteration of the shoreline can have positive and negative impacts. Positive impacts are the stabilization of severely eroding land, protection of endangered structures, and the protection of surface water quality. Negative impacts include possible down drift erosion, loss of wetlands, and a disruption of natural shoreline processes. Negative impacts are often magnified as the amount of altered shoreline rises. Increased alteration can also result in a further loss of natural balance in the shoreline environment.

In 1978, 14 miles or 73,920 feet (5%) of shoreline was artificially stabilized in Lancaster County. The 1994 Lancaster County Shoreline Inventory completed by the Northern Neck Planning District Commission showed that 28.7 miles or 151,620 feet of shoreline had been artificially stabilized by 1993. By 2006, 73.12 miles of shoreline (22.1% of the total) had been stabilized. As of December 2011, 437,243 feet or 82.8 miles of shoreline (25.1% of the total) had been stabilized. The 2015 VIMS Shoreline Inventory Report surveyed 87.21 miles of shoreline hardening or modification. Historically, while the trends for shoreline stabilization using almost exclusively hard methods accelerated, property owners are implementing living shoreline solutions for shoreline protection. where appropriate as knowledge and commercial availability of these solutions has increased.

Areas with large amounts of artificially stabilized shoreline in Lancaster County include:

1. Morattico
2. Monaskon
3. Main Branch Corrotoman
4. Mouth of Corrotoman/Weems
5. Carter Creek
6. Palmers/Brightwater
7. Windmill Point and Marina Area
8. Norris Bridge area

Source: Lancaster County Shoreline Situation Report, Virginia Institute of Marine Science, Gloucester Point, VA, June 2001. Lancaster County Shoreline Inventory Report 2015.

D. TYPES OF SHORELINE PROTECTION

1. Dunes

Dunes are a natural form of shoreline protection. They are a ridge or mound of loose, wind-blown material, such as sand. Dunes are very effective when vegetated. However, dunes must be protected from foot and vehicular traffic. In Lancaster County, there are several isolated areas of sand dunes, all of which are on private property.

The larger areas of dunes in Lancaster County are generally found along the lower Rappahannock River and the Chesapeake Bay, including parts of Fleets Island and Deep Hole Point. Smaller dune areas are found scattered throughout the County and are usually adjacent to higher energy water bodies.

Access to dune areas in Lancaster County is through private property or state-owned waters. Therefore, vehicular traffic is very limited with access available only to property owners with dunes on their land. However, pedestrian access to dune areas is not as limited; both individual property owners and boaters generate traffic. Realistic methods of minimizing negative impacts of pedestrian traffic in dune areas, which also recognize the Chesapeake Bay Preservation Act's allowances for access to state waters, need to be further explored in Lancaster County. Possible protection methods could include the requiring of raised walkways over dunes and other environmentally sensitive features when considering future development. Sand fencing and the planting of beach and dune grasses should be encouraged whenever and wherever appropriate.

2. Vegetation (Fringe Marsh Establishment)

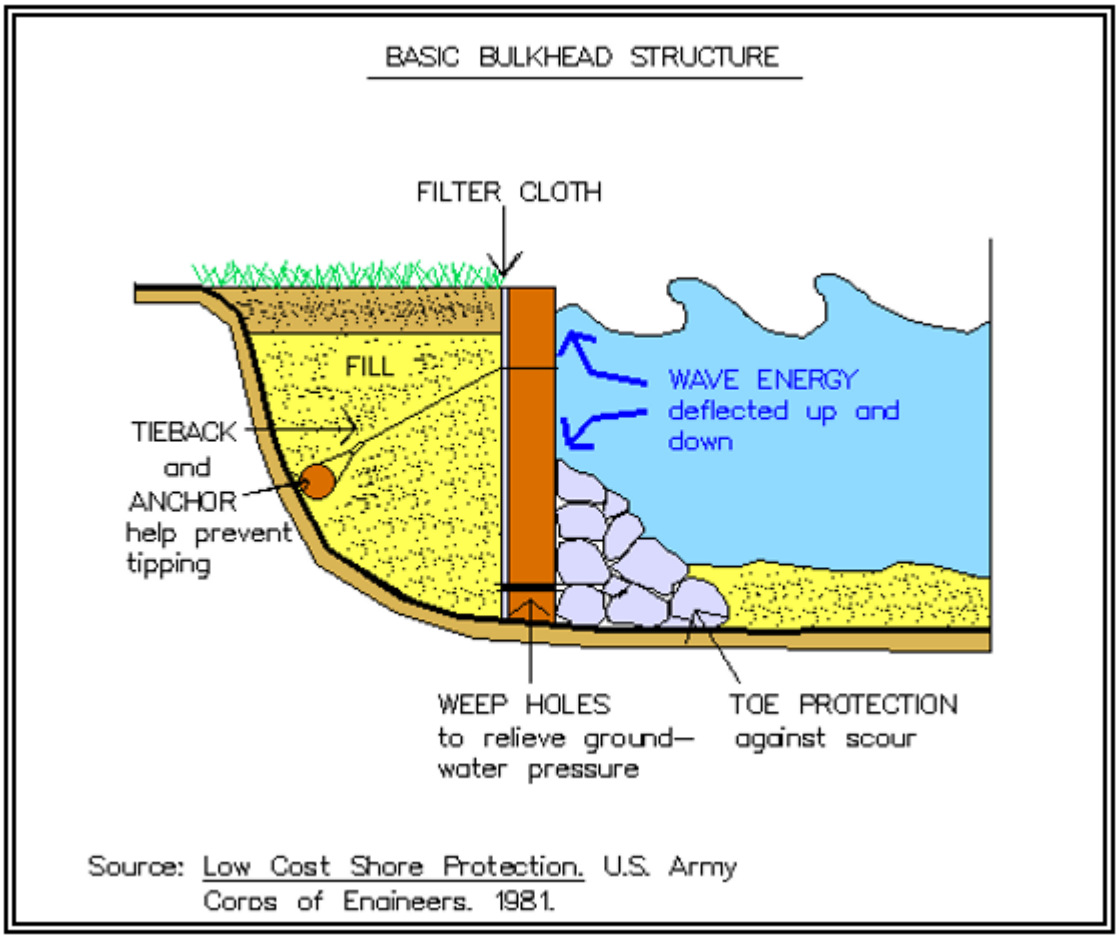
Vegetative shoreline protection is usually limited to creeks, smaller rivers, coves and partially protected shorelines where there are smaller fetches, and therefore less wave energy. Fringe marsh establishment is an environmentally sound shoreline protection alternative that is far less expensive than other commonly used methods for shoreline erosion protection and often requires no permits.

Many shoreline areas in Lancaster County are ideal for fringe marsh establishment. Often, previous fringe marsh in these areas has died due to boat wakes, the long-term effects of wave action, and the blocking of sunlight by large overhanging trees. The result is that a bank starts to erode where vegetative buffer existed before. Establishment of a new marsh fringe can reverse this erosion situation.

Fringe marshes have many desirable impacts. First, an established marsh traps sand moving with the tide and helps maintain a suitable marsh elevation. Additionally, fringe marsh acts as a baffle, which diminishes wave energy in the vegetated area before it reaches and erodes the upland bank. Fringe marshes also act to enhance water quality and wildlife habitat. Finally, fringe marsh is by far the most inexpensive method of shoreline protection.

3. Bulkheads and Seawalls

Bulkheads and seawalls protect banks and bluffs by completely separating the land from the water. Bulkheads act as retaining walls keeping the earth or sand behind them from crumbling or slumping. Seawalls are primarily used to resist wave action. Construction of bulkheads and seawalls can act to hasten erosion of beach areas immediately in front of the structures. This is because the structures redirect wave energy downward to the toe and beach areas. Bulkheads and seawalls are most appropriate where fishing and boating are the primary uses of the shore. They would not be appropriate on gently sloping beach areas.



4. Breakwaters

Breakwaters are structures placed offshore to diminish the energy of incoming waves. Larger breakwaters are suitable for protection of deep harbors. Individual property owners can use much smaller breakwaters to protect their shoreline. Breakwaters in this category are usually one to three hundred feet offshore in relatively shallow water and are designed to protect a gently sloping beach. Additionally, after wave energy is dissipated, sandy drift material can then be deposited behind the breakwater and act to build up the beach or protected shoreline.

Breakwaters must be properly designed. If they are too high they can interfere with natural shoreline processes, and if they are too low the shoreline will be inadequately protected. Breakwaters are also prone to scour, so the toe of the structure must be protected. Lastly, breakwaters can have negative impacts on neighboring or down shore properties. Drift material trapped by breakwaters can stop sand nourishment of the down drift shoreline.

Breakwater system in the Corrotoman River

5. Groins

Groins are structures that extend, finger-like, perpendicularly from the shore. Groins are usually constructed in groups called fields. The primary purpose of a groin is to trap and retain sand, nourishing the beach compartments between them. Groins are designed to interrupt the long shore transport of littoral drift. They are more effective where long shore drift is predominantly in one direction. If not properly placed, groins can decrease nourishment of downdrift shore, resulting in erosion of that shore.

Groins are suitable erosion control measures where a beach is desirable, and they are compatible with most recreational activities. Sand trapped by groins eventually provides a buffer between incoming waves and backshore and inland areas. The waves break on the new beach and expend most of their energy there. Groins are effective protection during normal weather conditions but offer only limited protection against storm-driven waves.

6. Revetments

Revetments are structures placed on banks or bluffs in such a way as to absorb the energy of incoming waves. The most common type of revetment used in Lancaster County is the rip-rap. Revetments are usually constructed to preserve the existing use of the shoreline and to protect the slope. Like seawalls, revetments armor and protect the land behind them. Additionally, depending on construction materials, revetments can be either watertight or porous. Porous revetments are most desirable because they can act to further diminish wave

energy, while allowing less wave energy to be reflected off of the structure's surface to beach or marsh areas in front of the structure.

Most revetments do not act to interfere with transport of littoral drift. Furthermore, they do not act to redirect wave energy to unprotected areas, except for beaches immediately in front of the structure. However, protecting previously eroding land cuts off the supply of the eroding material that before acted to nourish down shore beaches. This causes downshore areas to have less nourishment and can result in their eventual erosion.

Revetments must be built with armor material sufficient enough to withstand storm conditions prevalent in the area being hardened. Undersized armor rocks or material will cause the revetment to fail. The toe or base of the revetment should be buried or protected to prevent scouring of the structure. Revetments also should be built on slopes with 2 to 4 feet of run for every foot of rise. Failure to tie the revetment structure back into the shoreline can result in flank erosion around the structure, because the flank area now receives no up-shore nourishment from the protected shoreline.

7. Living Shorelines

Living Shorelines are a shoreline management practice that provides erosion control and water quality benefits; protects, restores, or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural and organic materials (*Code of Virginia §28.2-104.1*).

Living shoreline use and practice must take into account the area where they are intended to be used. Low fetch and low energy environments are more suited to the techniques that utilize only sand fill with oyster shell bags or biodegradable log sills. The higher energy environments require techniques utilizing larger riprap stones or similar structures, which break the wave energy before it impacts plantings.

Currently, Lancaster County requires no Lancaster Wetlands Board Hearing if the proposed Living Shoreline project meets the Group One or Group Two Living Shoreline General Permit Criteria outlined in State Code and by Virginia Marine Resources guidelines. More information on living shorelines may be found at https://www.vims.edu/research/departments/physical/programs/ssp/shoreline_management/living_shorelines/index.php

E. EXISTING CONDITION OF LANCASTER COUNTY SHORELINE

The Virginia Institute of Marine Science (VIMS) 2001 Lancaster County Shoreline Report groups shoreline into geographic segments. There are four segments that can be broken down into twenty-six plates. Data is presented in the Shoreline Situation Report by plate and segment. A summarization of shoreline characteristics by segment is as follows:

Segment One

Description:	Extends from border with Northumberland County south through Fleets Bay and east to Windmill Point
Shoreline Described:	93.64 miles
Land Use:	41% forested, 34% residential, 25% all other uses including nine commercial operations

Segment Two

Description:	From just west of Windmill Point, covering the Rappahannock River past Mosquito Point, the Route 3 Bridge, Carter Creek and the surrounding town of Irvington
Shoreline Described:	61.51 miles
Land Use:	38% forested, 16% "scrub/shrub", 36% residential, 5% commercial, 5% all other uses

Segment Three

Description:	Corrotoman River System
Shoreline Described:	113 miles
Land Use:	59% forested, 31% residential, 9% agricultural, 1% commercial

Segment Four

Description:	Rappahannock River northwest from mouth of Corrotoman River to Richmond County line
Shoreline Described:	62.49 miles
Land Use:	56% forested, 11 % "scrub/shrub", 24% residential, 9% all other uses but primarily agriculture

The complete Shoreline Situation Report is available at: https://scholarworks.wm.edu/cgi/viewcontent.cgi?article=1765&context=reports.

In 2012, VIMS also completed a Shoreline Evolution Report for Lancaster County's shoreline. This report uses aerial photos taken between 1937 and 2009 to determine the rates and patterns of shoreline change. The images were used to digitize shorelines and rates of change were calculated in 10-meter increments and plotted on maps. The report may be viewed at the Planning and Land Use Office for public reference. The report is also

available online at:
https://scholarworks.wm.edu/cgi/viewcontent.cgi?article=1262&context=reports.

Shorelines can also change over time as a result of rise in sea level and flooding associated with tropical storms or hurricanes. The Federal Emergency Management Agency (FEMA) has created and periodically updates Flood Insurance Rate Maps (FIRMs) for Lancaster County which determine the various flood zones along the county's shoreline. Hardcopies of the FIRMS are located in the Planning and Land Use Office for public reference and they are also available online at: http://msc.fema.gov. Flood zones are depicted on the county's geographic information system and may be accessed by visiting the county website at: www.lancova.com.

II. ASSESSMENT OF EXISTING CONDITIONS

Lancaster County is fortunate to have a large amount of tidal shoreline and abundant natural resources. However, as the shoreline becomes more developed, proper management of this resource will be required to preserve the present attractive qualities. The first part in the management process is recognizing the natural dynamics that shape the County's shoreline. The second part in this process is to understand how human activities can positively or negatively impact these resources. Lastly, proper management requires balancing the natural shoreline processes with man's interaction in order to reach the goal of a protected, and an enhanced environment.

Several areas in the County have historically experienced severe shoreline erosion including areas along Fleets Island, Fleets Bay, Morattico, and the Main Branch of the Corrotoman River. Also, several areas of the County have historically been impacted by moderate shoreline erosion including much of the shoreline along the Rappahannock River and the Main Branch of the Corrotoman River. There are many reasons for this shoreline erosion including the fetch and energy of the particular body of water, the topography and condition of the existing shoreline, the previous alterations of the shoreline, and wakes caused by boats.

While necessary in high wave energy areas, the cumulative impact of shoreline hardening measures in Lancaster County should be a cause for concern. The result of further alteration of the County's shoreline could be a continued loss of shoreline wildlife habitat, a non-uniform shoreline with spotty and unpredictable patterns of erosion and an increase in the loss of wetlands and beach areas.

As a separate but related consideration, Lancaster County has a limited system of non-intermittent and intermittent streams that feed tributary waters. Because of the topography of Lancaster County, erosion along the banks of these streams is virtually nonexistent. All streams have less than two feet of drop from their source to the point they enter tributary waters. As a result, under normal flow conditions, there is no opportunity for water to gain velocity that could cut banks. In periods of high rain where much greater levels of flow occur, the increased flow tends to spread over heavily vegetated stream basins, dissipating velocity while creating little or no erosion in the basin or on the banks. The fact that the highest point in Lancaster County is no more than 100' in elevation above adjacent streambeds is significant. There is therefore little opportunity for stormwater to gain

velocity as it runs off land adjoining streams. Finally, most development in Lancaster County is concentrated around tidal waters.

III. SHORELINE PROTECTION PLAN

A. EQUAL SITE SITUATION

Property owners must consider all shoreline protection alternatives and select the protection method most suitable for their shoreline having the least adverse impact to the environment and adjacent properties. In many cases, protection methods such as fringe marsh establishment are more economically and environmentally suitable solutions for shoreline protection, particularly in the many creeks in Lancaster County.

The over-armoring or hardening of the shoreline is costly environmentally and economically. Bulkheads and rip-rap can result in a loss of wetlands and beach areas due to scouring at the base, and wave energy reflected off the body of these structures. Hardening of the shoreline can cause down drift erosion due to the loss of nourishment supplies that have now been cut off through alteration, and of the protection structures themselves. Finally, the property owner expends excessive funds because they chose an expensive protection means when an alternative, less expensive treatment method would have been sufficient.

Where hardening of the shoreline is deemed necessary, County staff and the Wetlands Board will encourage those methods that have the least impact on the environment. For example, this policy will strongly encourage the use of properly designed porous revetments such as rip-rap or living shoreline systems over impenetrable means such as concrete revetments and bulkheads. Porous revetment structure and vegetated wetlands can act to dissipate the wave's energy as the wave breaks up the structure. Impenetrable structures instead act to deflect wave energy up, down, and back out, which can result in loss of sensitive environmental features in front of the structure.

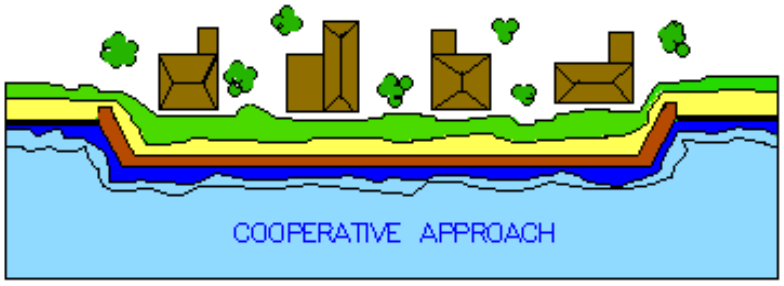
B. INCENTIVES FOR SUBDIVISION WIDE SHORELINE PROTECTION EFFORTS IN PROPOSED SUBDIVISIONS

The Lancaster County Subdivision Ordinance requires a shoreline management plan for new waterfront subdivisions to provide subdivision-wide shoreline protection efforts in lieu of individual efforts. This requirement assures that unique on-site characteristics related to shoreline protection would be studied and addressed in a coordinated, comprehensive subdivision-wide manner. It also provides the County a chance to guide the shoreline protection efforts of a larger area at one time before they become the many separate, individual efforts of property owners in a new subdivision.

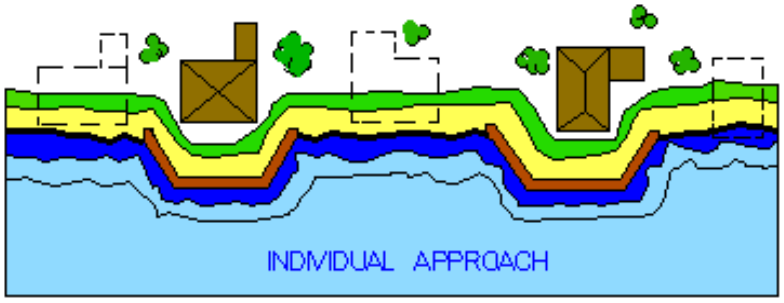
C. COOPERATIVE APPROACHES TO SHORELINE PROTECTION

Cooperative protection efforts in existing subdivisions and adjacent properties benefit both the County and waterfront property owners. First, the county gains through the preservation or enhancement of waterfront land values that in turn support the tax base. The property owners benefit by sharing construction costs perhaps reduced by the economies of scale,

while ensuring that flanking properties as well as their own are protected. Larger breakwater and living shoreline type projects result in enhanced water quality and marine habitat creation helping to support the local maritime industry. The result is that the County is left with a more attractive, uniform shoreline, a constant or increased tax base, and citizens who have saved through shared shoreline protection costs.



Cooperative approach to shoreline protection results in more effective protection against erosion, enhanced safety for personal property, an increased number of desirable building sites, and cost savings due to shared expenses.



Individual approach to shoreline protection results in possible increased erosion risk to neighboring properties due to flanking of the bulkheads, a decrease in the number of desirable build-sites, and a disjointed, uneven shoreline.

Source: Low Cost Shore Protection. U.S. Army Corps of Engineers, 1981.

D. ENCOURAGE VEGETATIVE ALTERNATIVES FOR SHORELINE PROTECTION AND VEGETATIVE ENHANCEMENT OF RESOURCE PROTECTION AREAS

Vegetative methods of shoreline protection are effectively used in parts of Lancaster County, including areas along tidal creeks, coves, and other low-energy water bodies with smaller fetches. Fringe marsh establishment, selective trimming of branches overhanging existing shoreline vegetation, landscaping, and enhancement of existing vegetation are options available to property owners in applicable shoreline areas. Additionally, all waterfront property owners could undertake vegetative enhancement of Resource Protection Areas. Such efforts include the planting of vegetative buffer areas or the replenishment and enhancement of existing shoreline vegetation. The benefits are that the property owner saves money through not opting for bulkheads or rip-rap, the shoreline is left in a natural

state, and wildlife habitat is enhanced.

E. SUPPORT EFFORTS TO EDUCATE PROPERTY OWNERS CONCERNING SHORELINE PROTECTION ISSUES AND ALTERNATIVES

Lancaster County will continue supporting programs for educating waterfront property owners about shoreline protection. The more knowledgeable property owners are of issues and alternatives surrounding shoreline protection, the better prepared they will be to decide upon their shoreline protection methods. The County will work with the Northern Neck Planning District Commission in re-instituting a workshop specifically for waterfront property owners considering shoreline protection strategies that will include identifying sources of plant materials appropriate for such protection.

Shoreline protection is regulated under the Lancaster County Code of Ordinances Chapter 26, Article II "Coastal Primary Sand Dune Regulations" and Article III "Wetlands". The County also employs an Environmental Codes Compliance Officer who serves as the staff contact to the Wetlands Board and shall be the first point of contact for citizens with shoreline protection questions.

F. COMPREHENSIVE COASTAL MANAGEMENT GUIDANCE

Issue Statement

Coastal ecosystems reside at the interface between the land and the water, and are naturally very complex. They perform a vast array of functions that encompass biological, chemical and physical processes. Humans derive benefits from coastal ecosystems such as habitat, water quality, and shoreline stabilization.

For example, coastal wetlands absorb nutrients that drain off the upland. This is an important filtering process that improves water quality in the adjacent receiving waters. Humans benefit from having good water quality; therefore, the wetland is providing a service in that capacity.

Beaches and dunes are another component of the coastal ecosystem valued by humans. Although typically regarded for their recreational value, beaches and dunes also provide a number of other important direct and indirect services. Beaches and dunes provide habitat, foraging and nesting areas for shore birds, turtles, and crustaceans, among other organisms. They also act as the first line of defense to incoming high energy storm waves and therefore provide an important function protecting uplands from erosion and structural loss.

The science behind coastal ecosystem resource management has revealed that traditional resource management practices limit the ability of the coastal ecosystem to perform many of these essential functions. The loss of these services has already been noted throughout coastal communities in Virginia as a result of development in coastal zone areas, coupled with common erosion control practices. Beaches and dunes are diminishing due to a reduction in a natural sediment supply. Wetlands are drowning in place as sea level rises and barriers to inland migration have been created by construction of bulkheads and revetments. There is great concern by scientists at the Virginia Institute of Marine Science

and on the part of the Commonwealth of Virginia that the continued armoring of shorelines and construction within the coastal areas will threaten the long-term sustainability of coastal ecosystems under current and projected sea level rise.

In the 1980s, interest arose in the use of planted wetlands to provide natural shoreline erosion control. Today, a full spectrum of living shoreline design options is available to address the various energy settings and erosion problems found. Depending on the site characteristics, they range from marsh plantings to the use of rock sills in combination with beach nourishment. Studies have found that these approaches minimize impacts to the natural coastal ecosystems while successfully combating shoreline erosion.

Research continues to reinforce the principle that an integrated approach for managing tidal shorelines enhances coastal resources. Therefore, adoption of new guidance and shoreline best management practices for coastal communities is now necessary to ensure that functions performed by coastal ecosystems will be preserved and the benefits derived by humans from coastal ecosystems will be maintained into the future.

Policy Statement

In 2011, the Virginia Assembly passed legislation to amend §28.2-1100 and §28.2-104.1 of the Code of Virginia and added section §15.2-2223.2, to codify a new directive for shoreline management in Tidewater Virginia. In accordance with section §15.2-2223.2, all local governments shall include in the next revision of their comprehensive plan beginning in 2013, guidance prepared by the Virginia Institute of Marine Science (VIMS) regarding coastal resource management and, more specifically, guidance for the appropriate selection of living shoreline management practices. The legislation establishes the policy that living shorelines are the preferred alternative for stabilizing eroding shorelines. Adoption of the VIMS shoreline guidance will help communicate to stakeholders, including private and public property owners, contractors, and developers the Commonwealth's preference for a living shorelines approach wherever possible.

This guidance, known as Comprehensive Coastal Resource Management Guidance, has been prepared by VIMS for localities within the Tidewater region of Virginia and shared through their Comprehensive Coastal Resource Management Portal (CCRMP). It explicitly outlines where and what new shoreline best management practices should be considered where coastal modifications are necessary to reduce shoreline erosion and protect our fragile coastal ecosystems. This guidance will include a full spectrum of appropriate management options which can be used by local governments for site-specific application and consideration of cumulative shoreline impacts. The guidance applies a decision-tree method using a based resource mapping database that will be updated from time to time, and a digital geographic information system model created by VIMS.

Recommendations

- Refer to the guidance presented in the locality's Comprehensive Coastal Resource Management Portal (CCRMP) prepared by VIMS to guide regulation and policy decisions

regarding shoreline erosion control. This portal may be accessed at https://www.vims.edu/ccrm/ccrmp/portals/lancaster/index.php

- Utilize VIMS Decision Trees for onsite review and subsequent selection of appropriate erosion control/shoreline best management practices: http://ccrm.vims.edu/decisiontree/index.html.
- Utilize VIMS' CCRMP Shoreline Best Management Practices for management recommendation for all tidal shorelines in the jurisdiction.
- Consider a policy where the above Shoreline Best Management Practices become the recommended adaptation strategy for erosion control, and where a departure from these recommendations by an applicant wishing to alter the shoreline must be justified at a hearing of the board(s).
- Encourage staff training on decision making tools developed by the Center for Coastal Resources Management at VIMS.
- Follow the development of the state-wide General Permit being developed by VMRC. Ensure that local policies are consistent with the provisions of the permit.
- Evaluate and consider a locality-wide permit to expedite shoreline applications that request actions consistent with the VIMS recommendation.
- Seek public outreach opportunities to educate citizens and stakeholders on new shoreline management strategies including Living Shorelines.
- Follow the development of integrated shoreline guidance under development by VMRC.
- Evaluate and consider a locality-wide regulatory structure that encourages a more integrated approach to shoreline management.
- Consider preserving available open spaces adjacent to marsh lands to allow for inland retreat of the marshes under rising sea level.
- Evaluate and consider cost share opportunities for construction of living shorelines

IV. GOALS AND OBJECTIVES

GOAL #1: **Actively encourage shoreline protection measures that are commensurate to the erosion potential at a particular site.**

Objective: Encourage shoreline protection methods such as fringe marsh establishment and living shoreline techniques in shoreline areas with less wave energy, light boat traffic, and small fetches.

Objective: Discourage use of bulkheads and riprap in low energy, lightly traveled water bodies, unless erosion justifies shoreline hardening for protection purposes.

Objective: Encourage use of revetments instead of bulkheads in high-energy shoreline zones, while also ensuring that revetment structures are armored adequately enough to provide the intended protection.

GOAL #2: **Encourage vegetative enhancement of Resource Protection Area (RPA) sections**

Objective: Evaluate subdivision proposals as to their existing shoreline condition and upland characteristics in regard to erosion. Recommend RPA enhancements to mitigate impacts of proposed development.

Objective: Encourage individual property owners to maintain and enhance their RPA areas in ways that protect the existing shoreline, improve water quality, enhance wildlife and fisheries habitat and mitigate the impact of their development.

GOAL # 3: **Encourage coordinated shoreline protection efforts in existing waterfront communities and in new subdivisions.**

Objective: Encourage waterfront property owners in existing communities to consider multi-parcel shoreline protection strategies before they pursue individual approaches.

GOAL# 4: Implement the Recommendations of the Comprehensive Coastal Management Guidance.

Objective: Implement the use of the VIMS Decision Trees for review and decisions by shoreline mangers in regards to shoreline development and protection.

GLOSSARY OF TERMS

Accretion - The natural building up of sedimentary material along a given segment of shoreline. Areas of accretion are gaining land over time due to natural processes.

Fetch - The unobstructed distance over water in which waves are generated by wind of relatively constant direction and speed. Classifications are as follows:

a. Narrow
b. Moderate
c. Wide
d. Unlimited

Littoral Drift - Sedimentary material, especially sand, moving along the shoreline under the influence of waves and currents.

Nourishment - The process of replenishing a beach. It may be brought about naturally, by accretion due to the long shore transport, or artificially, by the deposition of dredged materials.

Scour - Removal of underwater material by waves and currents, especially at the base or toe of a shoreline structure.

Shore forms

a. Cliffs A high, steep face of rock; a precipice.

b. Bluffs — A high, steep bank composed of erodible materials.

c. Marshes — Areas of soft, wet or periodically submerged land which is generally treeless and usually characterized by grasses and other low vegetation.

d. Beaches — The zone of sedimentary material that extends landward from the low water line to the place where there is marked change in material or form, or to the line of permanent vegetation (usually the effective limit of storm waves). The seaward limit of a beach - unless otherwise specified - is the mean low water line. A beach includes the foreshore and backshore.

CHAPTER 5

I. ACCESS TO STATE WATERS

A. INTRODUCTION

In 1988, the Chesapeake Bay Preservation Act (CBPA) was passed into law in Virginia. The purpose of the CBPA is to protect and improve the water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the effects of human activity upon these waters. The CBPA is designed to protect certain lands that if improperly used or developed may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries. The CBPA resulted in the creation of the Chesapeake Bay Local Assistance Board, which was charged with developing regulations that establish criteria providing for the protection of water quality, but will also accommodate economic development. The Chesapeake Bay Preservation Area Designation and Management Regulations were developed and became final in November 1990. These regulations have become the Tidewater Counties' guide in developing their own required local programs. Lancaster County implemented its Chesapeake Bay Preservation Ordinance in September 1991.

The Final Regulation (VR 173-02-01) Part V, Implementation, Assistance, and Determination of Consistency, details what is required of localities in carrying out the Chesapeake Bay Preservation Act. One requirement placed on the localities is that their Comprehensive Land Use Plan complies with the CBPA. The CBPA regulations state that the comprehensive plan, or plan component, should consist of the following basic elements: (i) a summary of data collection and analysis; (ii) a policy discussion; (iii) a land use plan map; (iv) implementing measures, including specific objectives and a time frame for accomplishment.

As part of the comprehensive plan element of the CBPA regulations, localities must address policies on a number of water quality issues. These issues include physical constraints to development, protection of potable water supply, relationship of land use to commercial and recreational fisheries, appropriate densities for docks and piers, and the provision of public and private access to waterfront areas and the effect on water quality.

This document represents a revision of the adopted Lancaster County Comprehensive Land Use Plan (2012). It addresses the water quality issues listed in the regulations, and is designed to fulfill the County's requirements under the Chesapeake Bay Preservation Act.

B. ASSESSMENT OF EXISTING CONDITIONS

Chesapeake Bay Act Regulations regarding public and private access to the water encourage localities to maximize human access to the water while minimizing the impact on the environment. The Regulations recognize there are many groups competing for access to the water, but only a limited amount of shoreline. Waterfront homeowners,

commercial fishermen, seafood industry owners, commercial business owners, and recreational users all require access to the water. These same users have the ability to negatively impact the water to which they are attracted.

The Regulations recognize that human access to the water can have many negative impacts on the environment. Construction of boat ramps and piers can result in the disrupting of wetlands, the clearing of shoreline vegetation, and alteration of the existing shoreline. Dredging required to maintain access to navigable channels can result in the stirring up of pollutants settled on the water bottom, as well as loss of submerged aquatic vegetation. Boat wake may result in an increase in shoreline erosion. Lastly, boating activity can result in water pollution from toxic hull paints, engine fluids, and improper disposal of human waste (Page VI-80 Local Assistance Manual, Chesapeake Bay Local Assistance Department; Richmond, VA: November, 1989). The Regulations encourage localities to find ways to minimize these resulting impacts of human access to the water.

The goal of the Lancaster County Public and Private Access to Waterfront Areas Study is to document alternatives that can satisfy access demands within our County, while ensuring continued protection of our unique waterfront environment. Existing access opportunities are identified. Demand for access is determined and additional need for access in Lancaster County identified. Feasible recommendations concerning public and private access to waterfront areas in Lancaster County were documented.

Many sources of data were used in developing the Public and Private Access to Waterfront Areas Study and Plan. Included are the Department of Health's Shoreline Sanitary Surveys for Lancaster County's water bodies, 2010 U.S. Census Data for the County, the Virginia Institute of Marine Science's 2001 Shoreline Situation Report for Lancaster County, and County-owned digital tax map coverage of Lancaster County from the Information Support System Lab at Virginia Tech. The tax map delineation is the reference for identification of areas within the County.

C. EXISTING CONDITIONS

The Chesapeake Bay to the East and the Rappahannock River to the South border Lancaster County. Other tidal water bodies flow through the County on the way to the Bay and River including Lancaster Creek, the Corrotoman River (Western and Eastern Branches), Carters Creek, Indian Creek, Dymer Creek, Tabbs Creek, Antipoison Creek, and/or branches off of these.

1. Shoreline Land Ownership

Over 97% (approximately 330 miles) of the land adjacent to tidal shoreline in Lancaster County is owned privately. The exceptions include Belle Isle State Park, Greenvale Creek Public Boat Landing, Windmill Point Canoe/Kayak Launch site and the Westland Beach area at the end of Route 695 (Windmill Point Road). Additionally, a parcel on Taylor Creek has been deeded to the county for public use**,** but remains undeveloped as of 2020.

2. Shoreline Land Uses

Land uses along the shoreline include private residential, agricultural, industrial, commercial, recreational, forest, and wetland. The April 1994 Lancaster County Shoreline Inventory conducted by the Northern Neck Planning District Commission detailed the following land use categories: residential; agricultural; seafood industry; commercial; forest; wetland; public/recreational; other. When this inventory was done there were 2,713 residential parcels in Lancaster County with fewer than 3% having more than one dwelling unit per parcel. The fact that there were 7,684 dwelling units in Lancaster County by 2019 (Source: U.S. Census Bureau) highlights the significant growth in this already predominant category. This growth has occurred primarily on the shoreline through planned developments, subdivision of larger parcels, and, of great concern, redevelopment of dormant seafood processing sites.

The growth in residential shoreline use is important because it reflects the demand for access to the water. Waterfront locations are valued as desirable sites for home building due in part to the unavailable water access for non-waterfront residential areas. However, growth in the number of residences on the shoreline can result in degradation of water quality. The initial clearing of a building lot, followed by the actual construction of a new home can lead to increased run-off of sediment into state waters. New waterfront residences also allow more opportunity for increased recreational use of state waters, as well as more opportunity for development of individual boat access and mooring structures. The cumulative effect of lot clearing, home construction, increased recreational use of water, and additional development of individual water access can result in degraded water quality.

As more land is devoted to residences, less land is available for other uses. Residential land generally provides access only to the owners of the property. This is not the case with other types of land uses such as commercial marinas, which satisfy considerable water access demand with a single parcel. Therefore, areas with high percentages of residential shoreline uses are considered priorities in targeting potential access opportunities.

a. Commercial Uses

Shoreline commercial uses in Lancaster County include marine resorts, inns, restaurants, boat repair facilities, and marinas. These uses contribute greatly to the County's economic vitality. Many tourists, seasonal homeowners, and recreational water users are drawn to Lancaster County because of the access opportunities and services that are provided here. Access in commercial areas can range from views of the water while dining to the rental of a boat for a day of sailing. Overall, commercial shoreline uses are necessary in order to satisfy a large amount of the public demand for access to the water.

Shoreline commercial uses can also have an impact on the environment. These uses generate increased amounts of boating activity, as well as providing areas for long-term boat mooring. The cumulative effect of intense boating activity and

boat mooring can result in decreased water quality and condemnation of shellfish grounds in the vicinity of the boating operation.

b. Industrial Uses

Industrial shoreline uses are mainly comprised of seafood processing businesses, with the exception of one grain loading facility on Indian Creek. The seafood industry has traditionally been a strong component of Lancaster's economy. Seafood industry sites, active and inactive, provide access to commercial watermen and others, and they stand as reminders of the important role this industry has played in the history and culture of Lancaster County.

Boat repair and general boat building facilities comprise other shoreline industrial uses. These facilities are located on Greenvale Creek, Carter Creek, and off of the Corrotoman River on Myer Creek. Most of these facilities service pleasure boats and perform some service to the commercial boat industry. At least one facility, located near the end of Johns Neck Road, performs work almost exclusively on commercial tug boats and large fishing vessels.

c. Public/Recreational Uses

Recreational shoreline uses are valuable because they provide access to the water for the general public. Recreational shoreline users include visitors to the area, recreational boaters, and residents of the County who have no other access options. In Lancaster County there are few public recreational shoreline uses. Lancaster County and the Department of Game and Inland Fisheries provide boating access at the Greenvale Creek Public Boat Landing, Belle Isle State Park, and the Windmill Point Canoe/Kayak Launching Facility. The Westland beach area at the end of Windmill Point Road offers public swimming to the citizens of Lancaster. Belle Isle State Park offers boating and fishing access as well as camping, nature trails and observation decks. The Taylor Creek site, when developed, will lend itself to car top boat launching and shoreline walking/nature trails.

3. Population

According to the 2010 U.S. Census, Lancaster County had 11,391 residents, which is a decline of 176 residents or 1.5% less than the prior census. The population in Lancaster County is greatest in the part of the County east of the Corrotoman River near the three towns of Kilmarnock, White Stone, and Irvington. Population densities in this part of the County range from 76 - 279 people per square mile. This is in contrast to the more sparsely populated western part of the County which has population densities ranging from 0 – 75 people per square mile.

4. Water Quality

Quality of surface waters is of vital importance to the Lancaster County community. Commercial fishermen, seafood industry owners, marina owners, and related employees depend on local waters for their livelihood. Citizens of the County enjoy living in a rural scenic setting that is enhanced by views of, and access, to the water. Finally, the water is a source of recreation for many in the Lancaster County community, as well as for many visitors to the area.

a. Non-point Source Pollution

This source of pollution, along with a summary of Lancaster County watersheds and their priority for cleanup of non-point source pollution was discussed in Chapter 3 ("Threats to Surface Water Quality"). Efforts to eliminate existing non-point source pollution will involve the commitment of considerable resources. As this occurs, consideration must be given to new uses of surface water to ensure that pollution caused by them does not negate or offset these efforts. Unlike the past, each new facility or permitted use must be evaluated as a potential source of pollution.

b. Condemned Shellfish Grounds

Another indicator of surface water quality is the location of condemned and seasonally condemned shellfish grounds. Typically, shellfish condemnation areas in Lancaster County are found only in small portions of creeks, not throughout the entire creek. Exceptions are Carter Creek, Greenvale Creek, Paynes Creek, Beach Creek, Lancaster Creek, Mulberry Creek, and the Eastern Branch of the Corrotoman River, which are all mostly, or totally, designated as condemned or seasonally condemned. A current listing of Lancaster County shellfish condemnations can be found by accessing:

https://www.vdh.virginia.gov/environmental-health/conditional-shellfish-harvesting-status/

Locations of shellfish condemnations are important water quality indicators because the waters have been condemned due to elevated levels of fecal coliform bacteria. High levels of fecal coliform bacteria can be due to animal (domestic and wild) waste, failing septic systems, marinas, or the flushing characteristics of the particular water body.

The statistics related to water quality over time are disappointing in that they not only show no improvement but also reflect greater area that has been condemned. While some of this might be explained by better monitoring mechanisms and stricter standards, the fact remains that in 2012 a greater portion of County waters are condemned than at any other time since monitoring began. Corrective action must be taken if the commercial seafood industry that has been a part of the cultural tradition of the County is to be restored to something approaching former levels.

5. Marine Resources

Lancaster County is fortunate to benefit from the presence of marine resources. These natural resources include Submerged Aquatic Vegetation, Wetlands, and Shellfish Grounds. Descriptions of these features, their functions in the man-made and natural environments, and the extent of their presence in Lancaster County are given below.

a. Submerged Aquatic Vegetation

Presented in Chapter 3 with further information found by accessing:

www.vims.edu/bio/sav/?svr

b. Wetlands

Wetlands are defined by the United States Fish and Wildlife Service as "lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water" (Pg. 4, Atlas of National Wetlands Inventory Maps of Chesapeake Bay. U.S. Fish and Wildlife Services; September, 1986.). Generally, wetlands can be classified as either tidal or non-tidal. Locally, Lancaster County has approximately 4,504 acres of tidal wetlands and 1,349 acres of non-tidal wetlands (figures were obtained using the Lancaster County Geographic Information System utilizing a digital National Wetland Inventory map layer).

Wetlands are important natural resources that provide many positive benefits to the man-made and natural environments. Wetlands provide aesthetic, recreational, and economic benefits to the community. Furthermore, wetlands are spawning and nursery grounds for finfish and shellfish, feeding and wintering sites for migratory waterfowl, nesting habitat for shore birds, and home to a wide variety of wildlife. Wetlands further serve as important areas for groundwater recharge, flood control, pollution absorption, and retention of sediment from storm water run-off (Pg. 1, Atlas of National Wetlands Inventory Maps of Chesapeake Bay. U.S. Fish and Wildlife Services; September, 1986).

The United States Fish and Wildlife Service now has the National Wetlands Inventory Available for viewing on the internet in an interactive mapping website. The USF&W NWI Wetlands Mapper can be located at: http://www.fws.gov/wetlands/Data/Mapper.html

c. Shellfish Grounds

Lancaster County has suitable shellfish grounds in the water adjacent to its shores. After many decades of decline, the oyster industry in Virginia is on the increase, having seen harvests double between 2007 and 2017 (VIMS 2017); these shellfish grounds and shores remain a valuable resource that should be protected.

The Commonwealth of Virginia has instituted a rotational oyster harvest system in the Lower Rappahannock River. It allows for some areas to be off limits to allow oysters to mature, while still allowing nearby beds to be harvested to allow for some return, as well as keeping the oyster beds active by removing siltation that has accumulated. This system seems to be working well and offers hope for wild Rappahannock River oysters.

The Virginia Coastal Zone Management (VACZM) Program has a brochure that outlines the success of the rotational oyster harvesting system. The VACZM publication can be accessed here:

http://www.deq.state.va.us/Portals/0/DEQ/CoastalZoneManagement/sectionc-oct2011-mar2012.pdf

The Virginia Coastal Zone Management Program has also created an interactive mapping website called Coastal GEMS that allows users to see all of the marine resources in the Virginia Coastal Zone. Users can zoom into their particular county, or even their nearby creek. Users can add layers to show marine resources such as Public Oyster Grounds, Submerged Aquatic Vegetation Areas, Anadromous Fish Use Areas and Privately Leased Oyster Grounds, as well as various Conservation Planning Models. The interactive coastal mapping service is found at:

http://www.deq.state.va.us/Programs/CoastalZoneManagement/CoastalGEMSGeospatialData.aspx

6. Existing Access

a. Private Access

The large majority of access to the water in Lancaster County is private. Private access includes private waterfront, boat ramps, piers, docks, boathouses, and beaches. As discussed in the Shoreline Land Use section, people utilizing private access to the water in Lancaster County include private homeowners, commercial business operations, and water-dependent industries.

b. Private Access and Pier Densities

Private access to the water satisfies a large part of the access demand within Lancaster County. However, impacts of private access to the water can clearly be seen in the results of the June 2001, Lancaster County Shoreline Situation Report. The inventory shows there are 1,690 piers in the waters of Lancaster County. As of 2012, it is estimated that this number has increased to approximately 1,820 piers or roughly one for every two shoreline parcels. Densities of piers vary widely within the County.

The majority of piers are located at residential parcels along the shoreline. Riparian rights of these property owners guarantee them access to state waters. In Lancaster County this means one pier per land parcel unless the parcel fronts two separate water bodies in which case two piers would be allowed. Access granted to residential waterfront property owners is often of low-intensity, but not without impact on the environment. In areas of the County where pier densities are greatest, almost every parcel has its own pier. These piers are often used for long-term boat mooring, not just for day use of boats. The cumulative effect of high pier densities and long-term boat mooring can result in decreased water quality within that body of water.

c. Public Access

Presently there is limited public access to the water in Lancaster County. Greenvale is a public boat landing located on the western side of the County at Greenvale Creek. This boat landing is a day use facility with an in-out ramp and a boarding dock. Public access is available at Belle Isle State Park, which is also located in the western half of the County. On the east side of the County, the Windmill Point Canoe/Kayak Launching facility is located at the intersection of VSH 695, Windmill Point Road and Brightwaters Drive, and the Westland beach area is located at the end of VSH 695, Windmill Point Road. The newest public boat ramp is located at the end of Windmill Point Road and within the Marina Boat Basin. This facility has been named the Frederick H. Ajootian Public Boat Ramp and was developed by the County of Lancaster and the Virginia Department of Wildlife Resources. Existing public access sites can be located on tax maps 12, 15, 19 and 40.

Public Access can be beneficial in that usually an in-out ramp and parking are the only services provided boaters. The lack of long-term mooring encourages the use of these facilities by recreational boaters, who put boats in the water and take them out the same day.

II. DETERMINING ADDITIONAL NEED FOR PUBLIC ACCESS

In assessing access to the water in Lancaster County it is evident that the supply of access is also in transition. In the past, much of the general public was able to access state waters through informal arrangement. That is no longer the case. Access has become very limited for non-waterfront residents, and the rest of the general public (visitors). These people can dine near the water, charter boats, or keep their own boat at a marina, but their options are limited by a lack of variety and financial constraints. Currently, there is no public pier for fishing in Lancaster County. Of the three public boating access sites, Greenvale is located away from the majority of the population in the County, is not near the Chesapeake Bay, and access is difficult absent regular dredging operations. Belle Isle State Park serves the upper county on the Rappahannock. Future opportunities to expand the variety and number of public access sites in Lancaster County are jeopardized by the expanding use of shoreline for residential purposes, and could very well become nonexistent in the near future.

Loss of access opportunities in Lancaster County could also limit viable options for the seafood industry. Although the decline in shellfish and finfish might have harmful effects on resources needed to sustain a seafood processing company, the supply could possibly be enough to support small commercial fishing operations and markets. Additionally, the remaining supply could definitely support a thriving recreational fishing market in Lancaster County. Reactivation of inactive seafood industry sites could ensure that these unique landmarks on the County's waterfront remain.

As far back as 1989, the Virginia State Outdoor Plan documented the need for expanded access to tidal waters. This situation has not changed during the intervening thirty years and, arguably, has worsened, especially in Lancaster County. Aerial surveys, public boat ramp surveys, and commercial marina surveys were conducted to measure existing demand and additional need of access.

First, the plan states that additional access is needed to the Rappahannock and Corrotoman Rivers. Second, the plan recommends that additional access sites should be considered in the western half of the County. Third, the plan encourages that access sites in the portion of the County east of the Route 3 (Norris) Bridge be considered. Lastly, the plan cites the Fleets Bay and Indian Creek areas of the County as having many protected sites. These sites would offer direct access to the Chesapeake Bay. The plan recommends that undeveloped publicly owned sites should receive attention for evaluation and development. These recommendations are as valid in 2020 as they were in 1989.

As the various surveys in the 1989 plan documented, the average Tidewater county has approximately four public boat ramps and eight total public access sites to the water. When considering the total amount of shoreline miles in each county, this equates to one public access site for each 31.5 miles of shoreline. Lancaster County has fewer than the average number of public boat ramps, total public access sites, and access sites per mile of shoreline. While one access site was added in 2003, and another in 2015, an additional five access sites are needed to have an average of one access site per 31.5 miles of shoreline in the County, if the Taylor Creek Site is developed.

III. ADDRESSING THE NEED

In 2002 a Citizens Advisory Group was formed to address the need for public access to state waters in the County. Their report contained specific recommendations for expansion of public access to the state waters while acknowledging obstacles. Foremost among these obstacles is the price of suitable land with shoreline, on the rare occasions that such land becomes available, and the corresponding limited amount of available state and local funds. To overcome this obstacle alternative means must be employed. These alternatives include Public/Private Partnerships, Use Agreements, proffered sites from developers, and recreational land acquisition funds. In addition, the County will encourage public-for-pay facilities by working with developers of commercial waterfront properties such as hotels and marinas.

In 2005, the Virginia General Assembly enabled the formation of the Northern Neck Chesapeake Bay Public Access Authority (NNCBPAA) if any of the counties in the region declared the need for a public access authority. On September 12, 2006, three counties in the Northern Neck - Lancaster, Northumberland and Westmoreland executed the operating agreement to form the Northern Neck Chesapeake Bay Public Access Authority to enhance public access within their jurisdictions. There are seven duties that the authority is charged with undertaking:

1. Identify land, either owned by the Commonwealth or private holdings that can be secured for use by the general public as a public access site
2. Research and determine ownership of all identified sites
3. Determine appropriate public use level of identified access sites
4. Develop appropriate mechanisms for transferring title of Commonwealth or private holdings to the Authority
5. Develop appropriate acquisition and site management plans for public access usage
6. Determine which holdings should be sold to advance the mission of the Authority
7. Perform other duties required to fulfill the mission of the Northern Neck Chesapeake Bay Access Authority.

The Northern Neck Chesapeake Bay Public Access Authority consists of two directors from each participating county (one of which is a member of the appointing governing body or its chief operating officer).

In October 2007, at the seventh meeting of the Northern Neck Chesapeake Bay Public Access Authority, Lancaster County representatives requested funding from the NNCBPAA to conduct environmental studies on a potential access site on a tributary to the Chesapeake Bay within Lancaster County. The NNCBPAA granted this request for funding to be used by Lancaster County in assessing the suitability of the parcel for public water access.

The Northern Neck Chesapeake Bay Public Access Authority, staffed by the Northern Neck Planning District Commission, is currently available to assist its member counties to increase public access opportunities within their locality. For more information please visit:

http://www.northernneck.us/public-access-authority/

A. GENERAL SITE CONSIDERATIONS AND ACCESS NEEDS

In determining locations for potential public access sites to the water, there are general site criteria that should be considered for initial screening purposes. Generally, public access sites to the water should have state road access, a location close to population centers, and availability of water suitable for the planned use of the site. Additionally, when acquisition funds are limited, a parcel of land publicly owned is optimal. These

general site criteria can be applied as screening tools for all types of potential public access locations. Additional site considerations are dependent on the intended use of the parcel of land. Types of access and additional site considerations are discussed below. Many of the presented site considerations are drawn from the Chesapeake Bay Area Public Access Technical Assistance Report (see p. 5-18 for Cited Sources).

1. Types of Access and Site Considerations

a. Natural Area Access

Natural area access can be sited on small or large parcels. Smaller parcels can be utilized for viewing, observation, or overlook areas adjacent to roadways. These parcels should have enough room to provide parking for several cars, and should also have enough area to allow users to safely enter and leave the adjacent roadway. Lastly, this type of public use should be located where expansive views are offered the user. These locations would include scenic views of the water or of large marsh/wetlands areas.

Natural area access can also be provided on large parcels of land. These parcels are best suited for nature trails that provide the user active recreation while also offering opportunities for nature observation and scenic views. Examples of this type of use in Lancaster County include the Hickory Hollow Nature Trail located off VSH 604, Regina Road and the Baylor Nature Trail located within the Town of Kilmarnock at Norris Pond off VSH 3. Parcels that are best suited for this use would be large farms, or the large tracts of woodlands owned by the timber companies.

b. Beaches and Swimming Areas

Beaches and swimming areas are a moderately intense to intense use of land. Sites for these activities should be medium to large size parcels of land, with a minimum size of approximately three acres. In some instances, adjacent land uses and specific lot configuration could allow use of a smaller parcel. However, all potential sites should have sufficient area for parking and support facilities. Additionally, candidate sites should have ample shore frontage, preferably with an existing beach. If possible, the beach should be wide, sandy, and not in danger of erosion. Water access at the site should be in easy walking distance from parking areas. Swimming water at potential sites should be clean, have little current, no sharp drop-offs, and a sandy, firm bottom. Additionally, candidate sites for beaches and swimming areas should be located away from commercial waterfront areas and heavy boating traffic. Wetland areas should be avoided in areas planned for pedestrian traffic or water access. Additionally, areas of shore where there is submerged aquatic vegetation (SAV) growth and threatened or endangered species present should be avoided.

c. Fishing Piers

Fishing piers are moderately intense uses that can be more intense at the peak of the fishing season. Potential sites for fishing piers can either be small or large parcels of land. Size is more dependent on the particular layout of a potential site. Whatever the size, candidate sites should have good shore frontage. Above all, potential sites should be located along a body of water that has a sufficient population of game fish. Availability of fish to catch will be the deciding factor in the success of the pier.

Additionally, potential pier sites will be selected that offer no obstructions for navigable channels and with water depth an average of two feet at mean low water. Erosion rates at the site should be less than two feet a year or erosion protection might be needed. Wind and wave action should also be considered due to the effect they may have on long-term maintenance of the facility. Environmentally, no wetlands should be disrupted and areas of submerged aquatic vegetation (SAV) should be avoided. Lastly, the site should have sufficient area for parking and support facilities.

d. Bank Fishing and Crabbing

Bank fishing and crabbing is generally a less intensive use. Potential sites should be located on small or large parcels of lands. Smaller parcels would have to be configured with a large shoreline area and sufficient room for parking. Access could be provided on a parcel as small as a 1/3 acre, particularly if a dock is used or there is good shoreline.

Bank fishing and crabbing areas should be on water with a good supply of fish and crabs. As with piers, the success of the site will depend on the availability of fish and crabs to catch. Potential sites should have an average depth of two feet at mean low water and should be located away from commercial or industrial waterfront areas. Candidate sites should also have low erosion rates, little wind/wave action, and offer no obstruction to navigable channels. Lastly, pedestrian walkways and water access should not disrupt any wetlands on the site.

e. Car top Boat Launching

Car top boat launching is usually a less intensive use. These areas are used to provide access to users of canoes, rowboats, wind boards, etc. Sites are generally located on smaller, shallower bodies of water. These sites can be developed on parcels as small as one-half acre depending on lot configuration and adjacent uses.

Potential sites should have sufficient area for parking, a shoreline area suitable for launching of small boats, and no wetlands in the utilized area. Water at the site should be conducive to operation of small boats and can have a depth as shallow as one foot at mean low water.

f. Marinas, Boat Ramps and Boarding Docks

Boating access areas that provide ramps are generally intensely used during boating and fishing season. Due to the possible impacts boating can have on the environment, it is important to target suitable areas for these facilities. The Virginia Marine Resource Commission's Subaqueous Guidelines publication details criteria to be followed in choosing potential locations for boating facilities. The criteria are found in "Criteria for the Siting of Marinas or Community Facilities for Boat Mooring." (4VAC-20-360-10)

VMRC Marina and Community Facility Siting Criteria Check List

Criteria	**Undesirable**	**Desirable**
Water Depth	< than 3 ft. MLW.	> than 3 ft. MLW.
Salinity	Suitable for shellfish growth	Unsuitable for shellfish growth
Water Quality	Approved, conditionally or seasonally approved for shellfish harvesting	Closed for direct marketing of shellfish. Little or no potential for future productivity
Designated Shellfish Grounds	Private leases or public oyster ground in proximity	No private leases or public ground within affected area. No potential for future productivity
Maximum Wave Height	> than 1 ft.	< than 1 ft.
Current Dredging	Greater than 1 knot. Requires frequent dredging. No suitable site for dredged material	Less than 1 knot. Does not require frequent maintenance. Suitable for all dredged material
Flushing Rate (Tidal Exchange)	Inadequate to maintain water quality	Adequate to maintain water quality
Proximity to Natural or Improved Channel	> than 50 ft. to navigable water depths	< than 50 ft. to navigable channel
Threatened or Endangered Species	Present as defined in existing regulations, or project has potential to affect habitat	Absent; project will not affect
Adjacent Wetlands	Cannot maintain suitable buffer	Suitable buffer to be maintained
Navigation and Safety	Water body difficult to navigate or presently overcrowded conditions exist	Navigation not impeded
Existing Use of Site	Presently used for skiing, crabbing, fishing, swimming or other potentially conflicting uses	Not presently used for skiing, fishing, swimming, or other recreational uses
Submerged Aquatic Vegetation	Present	Absent.
Shoreline Stabilization	Bulkheading Required	Shoreline Protected by natural or planted vegetation or riprap.
Erosion Control Structures	Groins and/or jetties necessary	No artificial structures needed
Finfish Habitat Usage	Important spawning and nursery	Unimportant area for spawning or

	area	nursery for any commercially or recreationally valuable species

B. RECOMMENDATIONS

In considering public access in Lancaster County, publicly owned land will be evaluated first. The Windmill Point Canoe/Kayak Launching site has been improved to include a car top launch facility, and three more unimproved sites have been secured for public use on the upper part of the Western Branch of the Corrotoman, Taylor Creek, and The Eastern Branch of the Corrotoman, respectively. While a step in the right direction, the need in the lower part of the County remains. This need will be addressed by focusing on land that might be used at minimal cost through use agreements or partnerships. Included in this category are inactive seafood industry sites, large timber tracts and farms, and private boat ramps that are currently available for use by the public. Land that might be acquired at reasonable cost, such as smaller parcels for bank fishing or crabbing and car top boat launching, will also be pursued if and when it becomes available.

1. Natural Area Access

In addition to Belle Isle State Park, there are two publicly owned tracts of land, which are suited for natural area access -- the Westland beach area located at the end of Windmill Point Road and the Western Branch of the Corrotoman which is accessed off VSH 3 between Lancaster Courthouse and Lively and is called *Chesapeake Trail.* Consistent with the Master Plan, Belle Isle State Park now has a well-developed natural area access including both nature trails and observation areas or decks. Future efforts will focus on the Westland beach area and further development of the Western Branch site.

While restricted in size, the Westland beach area at the end of Windmill Point Road is suitable for natural area access and an observation or overlook site. The site offers extensive scenic views of the Rappahannock River and Chesapeake Bay. When considering environmentally sensitive features, there are no wetlands present at the site, there are no SAV beds growing immediately adjacent to the shoreline, and the nearby shellfish grounds are condemned due to a nearby marina. Parking spaces can be provided in the present turnaround area or a possibly expanded area, and a walkway constructed to allow access to the waterfront. A large wooden deck can be constructed near the waterfront area that will have wooden benches for viewing purposes of visitors. Another option is to construct a small elevated observation deck that will allow visitors expanded views of the water. Development of this site for natural area access will be done so as to retain as much of the beach area as possible. As the only public beach in the County, it is heavily used and widely popular among those seeking beach access. Further effort should also be expended to improve the beach at Westland through modern shoreline improvements such as breakwaters and beach nourishment, as well as obtaining more linear feet of public beach either in easement, or fee simple ownership.

The Western Branch site is already being used as a natural access site. A hiking trail was built and is being maintained by a citizen volunteer group. Parking area created many years ago by borrow operations adjacent to VSH 3 is more than sufficient for current requirements and should meet future requirements. Functionality of this site for natural access can be enhanced by an observation deck.

In 2007, Lancaster County was granted an 11-acre property located off Taylor Creek and described as *Taylor Creek Park*. This property presents an opportunity for a small public access area that could feature a canoe and kayak launch as well as expanded paddle boarding opportunities and bank fishing. The adjacent properties leading into this parcel are owned by the New Tides, LLC and a partnership opportunity exists to create a road into the property that may serve both interests with mutual benefit.

Lancaster County acquired a parcel of land located off VSH 607 Good Luck Road in order to possibly construct a new school complex at some point in the future. This site is located near the tidal headwaters of the Eastern Branch of the Corrotoman River between Norris Prong and Camps Prong. While largely undeveloped at this time, this parcel of land may present some opportunity for a future public access point for canoe and kayak access and bank fishing. Effort should be made to plan for these possibilities.

Other opportunities for natural area access exist on the many large tracts of privately owned land adjacent to tidal waters in Lancaster County. Many of the larger tracts of timber, farm, and wetlands are ideal for natural area access, and can be targeted for access by negotiating use agreements. Ideally, large tracts of land not in active use will be pursued first. Larger tracts owned by timber companies will be the initial targets. These companies are tied to long-term land ownership due to the nature of the product they produce. In the past these companies have also responded to the recreational needs of the community.

2. Beaches and Swimming Areas

Lancaster County currently has only 50 feet of beach area (far less than the desired three acre minimum) suitable for swimming in the total 330 miles of waterfront. In addition to the Westland beach area at the end of Windmill Point Road, Belle Isle State Park is the only publicly owned land that has area available for the development of beach and swimming areas.

The vast majority of land suitable for public beaches is in private ownership. This situation has severely limited the options for public beaches in Lancaster County and will only become worse with each passing year.

3. Fishing Piers

Publicly owned land on the eastern side of the County offers the greatest potential as a site for a public fishing pier. In the event that no current publicly, owned sites are found suitable for this purpose, the County will identify and purchase suitable privately owned

properties. Environmental considerations such as the presence of wetlands, submerged aquatic vegetation, and viable shellfish grounds will be considered when acquiring the potential site.

After a suitable location is identified the County will actively pursue development funds from the state for this site. The County has an advantage in that current state recreational access plans call for the much-needed expansion of access to state waters in our region. The Department of Game and Inland Fisheries offers grant programs for access development. A local public access fee for new waterfront construction could also serve as a source of funding.

The Virginia Marine Resources Commission is involved with the capital funding of saltwater recreational access sites. Available funding in these programs varies from year to year, but the maximum amount will be pursued. After construction funds are obtained the pier will be developed, and a management agreement worked out with the Virginia Marine Resources Commission and the Department of Game and Inland Fisheries.

4. Bank Fishing/Crabbing and Car top Boat Launching

These two categories of recreational access will be addressed at the same time due to their similar site considerations. Bank fishing, crabbing and car top boat launching facilities are offered on publicly owned land at Belle Isle State Park. These activities will also be offered at the Taylor Creek Park site, which will be accessed from VSH 222, Weems Road and provide water access to Taylor Creek and the Corrotoman River.

Additionally, Greenvale Creek Public Boat Landing has a boarding dock that can accommodate a small number of fishermen or crabbers. Further opportunities for publicly owned bank fishing and crabbing could become available if the Merry Point Ferry were to ever go out of operation. The two ferry landing sites would be ideal access areas for bank fishing and crabbing. The County will pursue ownership of these lands in the event the ferry stops operating. Furthermore, these sites are suitable for development as car top boat launching areas. These two uses would be best suited for the ferry sites due to the limited amount of area available for parking spaces.

The County will consider creation of a recreational access fund for the development of bank fishing, crabbing, and car top boat launching sites in the County. The fund will be administered by the County and used to provide public access to the water. This fund will build slowly over time from available resources in the community. Funds will be used for the acquisition and development of small parcels in areas on shallower creeks, which have been traditionally less desirable for residential use. The fund will be open to private donations of both money and land. When ample funds accrue and parcels became available, they should be acquired. Development of these sites will also occur as sufficient funds are accumulated.

5. Boat Ramps and Boarding Docks

Belle Isle State Park now has a boat ramp and boarding dock. While examination of other publicly owned sites in the County finds them unsuitable for use as boat launch sites, there is reason to believe that public road endings have not been investigated as thoroughly as they might be for siting of boat ramps or docks. Public road endings should be investigated much further by the PDC and the Northern Neck Public Access Authority. VDOT should also be brought in as a possible partner in this endeavor.

The County will also pursue public boating access through the use of public/private partnerships. The County will actively pursue partnerships with owners of the many inactive seafood industry sites in the County. When using the VMRC boating-facility-siting criteria, it is evident that inactive seafood industry sites are ideal candidates for public boating access locations. The majority of these areas already have altered shoreline, existing access facilities, access to navigable channels, sufficient parking area, and are adjacent to waters that are condemned for shell fishing. Therefore, use of these sites will be the least damaging option when considering the environment. Lastly, there are a number of inactive seafood industry sites in the areas targeted for public access to the water.

Reuse of inactive seafood industry sites can serve many purposes. Public boating access can be provided in Lancaster County on creeks that provide direct access to the Lower Rappahannock River and Chesapeake Bay. Many of these inactive seafood industry sites are still used for water access by commercial fishermen. Assuring that these sites remain dedicated to providing access would help sustain our remaining commercial fishing industry. Owners of these seafood industry sites can be given options that they don't currently have. Incentives can be offered to these owners by the County, which would allow them to start some type of complementary business at the site. Currently unused buildings can be rehabilitated and used to provide bait, tackle, seafood, or small grocery products for sale. Lastly, important landmarks on the County's waterfront can be saved from abandonment and re-used in a way that assures their continued role in the County's future development.

Additional County efforts will focus on negotiating agreements with owners of existing privately owned, non-commercial boating access sites, which are made available for public use. One example in Lancaster County is a heavily used, privately owned site available for public use located in Irvington. Agreements with these property owners will ensure that the sites will continue to be used in the future as boating access sites. Furthermore, it is feasible for the County to find at least one property owner who would be willing to transfer management of an existing site to the Department of Wildlife Resources or the County. If this occurs, the County can take an active role in ensuring that the property owner's intentions for the site are fulfilled, and that the site is named for the donating party.

6. Policies for Private Access to the Water

Policies for private access to the water have been developed with the realization that the

County has almost no authority to limit an individual property owner's access to adjacent state waters. Policies concerning private access to water center on awareness of the impacts of individual access and encouragement of voluntary measures for environmental protection individual property owners may take.

a. Continue to encourage subdivision designs that provide adequate community facilities for the provision of water access. Presence of good community facilities could deter some private landowners from developing their own on-site access structures. Community boat ramps also give neighborhood boat owners convenient opportunity to take their boats out of the water when not in use.

b. Heighten public awareness concerning the impacts of boating on water quality. During boating season, use public service announcements on the radio that encourage boat owners to take their boats out of the water when not in use. Furthermore, target the growing number of seasonal homeowners, and develop an information pamphlet that can be sent to their homes. The pamphlet will describe the impacts of long-term boat mooring, and will enlist the help of owners in removing boats from the water when not in use during the week.

C. IMPLEMENTATION

1. Local Efforts

The County will continue laying the groundwork for the provision of public access sites to the water in Lancaster County, especially Bay access. Initial steps as follows will involve staff time and will require no other expenditure of public funds:

- Actively recruit owners of inactive seafood industry sites to create interest in re-using these sites for public access purposes;

- Pursue owners of private ramps currently being used by the public to establish use agreements;

- Apply for grant funds for development of these sites (see Outside Funding Sources);

- Make known the objective of gaining ownership of publicly owned sites at the Merry Point Ferry Landings, if and when they become available;

- Contact owners of large tracts of timber on state waters and negotiate use agreements for these lands.

- Actively participate in the Northern Neck Chesapeake Bay Public Access Authority to capitalize on the opportunities the Authority can provide. County staff should make sure that this body is meeting and staying actively involved in the pursuit of better public access.

2. Outside Technical Assistance

Representatives from the Department of Conservation and Recreation have stated their willingness to provide technical assistance in site selection and in negotiating agreements between localities and private landowners for public access sites. Assistance will be contingent on whether or not the proposed project is compatible with state recreational access plans. All of the proposals in this plan are compatible with state plans.

3. Outside Funding Sources

- Land and Water Conservation Fund (LCWF) - This is a Federal fund administered by the Virginia Department of Conservation and Recreation (DCR) through their Virginia Outdoor Fund Program. According to DCR, Virginia's allocation from the LCWF has been averaging $500,000 a year in recent years. Money is made available to localities on a competitive basis. Funds are provided on a 50/50 matching basis, with localities putting up the other 50% of the project cost. The funds can be used for either acquisition or development of recreation sites. Boating and water access projects are given priority by DCR in the awarding of grant funds. Currently, DCR tries to fund four to five projects each year. These projects usually average $100,000 in federal funds, for a total project cost of $200,000.

- Virginia Coastal Zone Management Program does not currently have any dedicated funding for public water access projects, however, there is a possibility that re-programmed grant funding may become available throughout any grant year. VACZM staff has notified NNCBPAA staff that if a county has a public access project that has been vetted, has a realistic conceptual plan, with an estimated budget for acquisition, construction and long-term management, then that project can be submitted for consideration for funding should reprogrammed funds become available. The availability of reprogrammed funding is not guaranteed, however, there is also another possibility of funding through a PDC competitive grant should that program be continued by the Virginia Coastal Policy Team in upcoming years. If a project is funded through the VACZM, the grants require a 50/50 match, and the facilities will need to be ADA compliant.

- The Virginia Marine Resources Commission manages the Virginia Saltwater Recreational Fishing Development Fund (VSRFD), which is funded by a portion of the Virginia Saltwater License Fee, which was enacted in July 1992. This fund is to be used to improve recreational fishing opportunities in Virginia and public water access facilities are one of the project types approved for possible funding. In 2000 the Recreational Fishing Advisory Board (RFAB) recommended that 25% of the fund could be used for recreational fishing public access projects in any given year. While no match is required from the VSRFD, showing that other funding has been sought and acquired will go a long way to demonstrating local commitment to the project.

- Virginia DWR Grants to Localities Program - Program provides 75% of development costs for selected public boating access projects up to a maximum of $50,000, and up

to $25,000 for selected public fishing access projects. Funds are awarded on a competitive basis. If successful, the County will enter into a cooperative agreement with the Department of Wildlife Resources to maintain and operate the facilities.

- Private Funding Sources - Virginia is home to many large angling clubs, especially in the larger urban areas of Tidewater, Richmond, and Northern Virginia. These groups could be solicited for private donations in support of the development of public fishing and boating facilities. Virginia also has many private foundations that will be contacted to determine if they offer grant funds for public access to water projects.

IV. GOALS AND OBJECTIVES

GOAL # 1 ***Provide*** **and encourage adequate recreational access to State waters, while ensuring continued protection of the natural environment.**

Objective: *Require* community access facilities in new residential subdivisions as an alternative to individual ramp and pier construction.

Objective: *Develop* convenient public access facilities in areas of high pier densities in order to give boat owners options for taking their boats out of the water when not in use.

GOAL #2 ***Create*** **public access opportunities that offer varied waterfront experiences.**

Objective: *Create* a public boat ramp site on the eastern side of the County that can provide direct access to the Chesapeake Bay.

Objective: *Create* a public boat ramp site on the Corrotoman River.

Objective: *Create* a public boat ramp site on Carter Creek.

Objective: *Develop* a public fishing pier on publicly owned land in the eastern half of the County. This effort should specifically focus on a moderate to deep water site, with reliable fishing, preferably off or near the main stem of the Rappahannock River.

Objective: *Develop* a public beach or expanded existing beach at the eastern end of the County, or in as close proximity as possible to the population centers of Kilmarnock, White Stone, and Irvington.

Objective: *Encourage* private owners of waterfront and other unique properties to negotiate use agreements that can provide access to their lands for nature trails, observation, and study. Encourage the use of conservation easements to achieve this objective.

Objective: *Develop* a public access acquisition fund that will be used to buy affordable water front lots to be used as car top boat launching and bank fishing/crabbing sites.

Objective: *Partner* with the Northern Neck Chesapeake Bay Public Access Authority to acquire and enhance public access within the county.

Objective: *Create* a plan to develop the Taylor Creek Park site into a form of natural area and public access.

Objective: *Explore* options for the Good Luck Road school complex site. Develop a conceptual plan for the proper possible uses here.

GOAL #3 ***Create*** **public access sites which can enhance economic opportunities in Lancaster County.**

Objective: *Actively* encourage owners of vacant industrial waterfront sites to re-use these sites in a way that provides access, while also creating new chances for business.

Objective: *Actively* encourage owners of waterfront sites that currently provide access to commercial fishermen, to work with the County in a public/private partnership that will guarantee continued commercial, as well as public, access at these sites.

Objective: *Create* public access sites in locations where they can act to generate traffic to nearby businesses. Pursue partnerships with adjacent property owners to county owned or leased lands, who may be developing a property to create mutually beneficial features and embrace public access as an amenity to planned housing, shopping, marina sites, etc.

CHAPTER 6 – PUBLIC FACILITIES, INFRASTRUCTURE AND SERVICES

A. INTRODUCTION

This chapter discusses Lancaster County public facilities, infrastructure and related services, which are developed and maintained with private, County, State and Federal revenues. Special emphasis is given to facilities and services provided at the county level. Details about any specific area are general--in accordance with Virginia Code for Comprehensive Plans, i.e. ... "shall be general in nature in that it shall designate the general or approximate location, character and extent of each feature shown on the plan ... "

The information and plans provided in this chapter will assist the County by identifying public facilities and services required in the future to accommodate a changing and growing population. The plan will provide policies and guidance concerning the County's intent to provide services of a particular type, and will be of great value to private, as well as, public agencies that operate separately from the County government.

B. HIGHWAYS

Lancaster County is served by a network of primary and secondary roads that are maintained by the Virginia Department of Transportation (VDOT). There are no Federal Primary roads in Lancaster County. Except for a few privately owned roads and resident streets, VDOT operates and maintains all public road systems in the Commonwealth of Virginia. New secondary roads may be built as part of a private development and later included into the State System if they are planned and constructed to VDOT standards and meet service requirements for state-maintained roads.

There are two State plans for roads, one for the primary system and one for the secondary system. The State places high priority on traffic consideration when planning improvements to all existing public roads. However, as VDOT prepares its plan for major highway improvements, Lancaster County is offered the opportunity to review priorities on the widening of roads and improvement of bridges located within the County. Each system has its own planning cycle and in order for the County to introduce planning priorities it must do so at the proper time within each planning cycle. The timing of these improvements can be influenced through sound County planning, and knowledge of local use.

This section of the comprehensive plan focuses on the potential need for improving a network of roads that best meets the traffic circulation needs of different areas of the County.

1. Major Roads Identified

Twenty-four-hour traffic volumes provide the clearest understanding of which roads carry predominant traffic in Lancaster County. The VDOT prepares traffic counts on most state roads on a continuing basis. (Traffic Volume map is a graphic illustration of the daily volumes of vehicles on the primary roads.)

As of traffic counts conducted in 2019, Route 3 carries an Annual Average Daily Traffic

(AADT) count of 11,000 vehicles. The AADT for route 200 between Kilmarnock, Irvington and White Stone is 6,000 and Route 354 is 1,900 vehicles per day. These three primary roads provide major circulation within the County's economic corridor and also connect the County with Northumberland, Richmond and Middlesex Counties.

Secondary roads, shown on the map with traffic flow above 500 AADT, extend traffic service from the primary routes to areas with concentrations of residential development, agriculture or marine activities. Brief observations are appropriate for specific roads. Between Lively and Heathsville, Route 201 has traffic volumes that are below that normally expected on a Primary Road, but instead carries traffic at about the same level as a secondary road. This is a reflection of its physical condition because the distance from Kilmarnock to Heathsville over the 3/600/201 route combinations is about the same as it is over routes 200 and 360. Traffic naturally follows routes that are in the best condition. However, the segment of Route 201 between Route 3 (at Lively) and Route 354 is properly classed as a Primary Road. It serves as the main route for people living along and near Route 354 to travel to the east and southeast sections of the county.

Most other roads with traffic above 500 vehicles per day serve major areas of development or serve as corridors through rural areas. In general, these roads will continue to serve as feeder routes to developing areas and some of poor quality will warrant a high priority for future improvements.

2. General Road Plan

The General Road Plan for Lancaster County is a significant part of the Comprehensive Plan that will serve as a valuable guide to the County for purposes of identifying the County's priorities for road improvements.

a. Four-Lane Primary Road

VA 3: This is the central traffic corridor of the County and serves as the major conduit for traffic moving into, through and out of the County. It now has two, four-lane segments: one segment connects White Stone and Kilmarnock; the second segment extends from mid-Kilmarnock NW about 1.5 miles. Preliminary Engineering is in progress to extend this NW segment an additional 3.3 miles (4.8 total) to Lancaster Courthouse. The County's primary strategy for VA 3 includes completion of all segments as a four-lane road in order to establish a safe and efficient traffic corridor through the County. Also, such a corridor would help attract the market base that exists to the NW in Richmond County and to the SW in Middlesex County. Where Route 3 passes through towns and villages, attempts will be made to coordinate improvements with the local need for traffic management in order to minimize interference between local and through traffic. This is a particular factor in Kilmarnock where on-street parking competes with through traffic. A similar, but less critical, problem exists in White Stone. Kilmarnock has taken steps to address this problem by adding additional off-street parking and implementing a truck bypass around town in 2012.

b. Two-lane Primary Roads

VA 354: This route is unique in that it begins (at VA 3, near Chinns Mill Pond) and ends (near Bertrand, at the banks of the Corrotoman River) in Lancaster County. Yet, VA 354 provides access to a notable segment of the county's population and portions of it are similar in VPD to VA 3. It serves as a feeder route for approximately 20 secondary routes and several adjacent villages. Many of these secondary routes access sizable developments along the Rappahannock or Corrotoman Rivers. Other secondary routes connect to another secondary route, which in turn serve dwellings located near these rivers. Also, several businesses are located adjacent to VA 354, and secondary roads stemming from VA 354 serve other businesses. It provides primary access to a viable seafood industry that has existed for decades along the banks of the Rappahannock River and its tributaries, and to a number of summer dwellings. In addition, appreciable agricultural and timberlands flank both sides of VA 354 for its entire length, and it is the major access route for these industries. VA 354 is the feeder road for VA 683 (now built to Primary Road Standards) leading to the 708-acre Belle Isle State Park. This park is developing, and traffic will increase as more new facilities are constructed and the public is attracted to its many recreational opportunities. Accordingly, VA 354 will warrant a high priority position in the Comprehensive Plan.

VA 200: This route links Irvington to Kilmarnock and serves as a major route leading to Northumberland County and thus to villages and towns to the North and East. VA 200 is the second most traveled and perhaps the second most important economic corridor in the county, carrying slightly less traffic than route VA 3. It is also a feeder route via VA 3 to locations south of the Rappahannock River. Traffic will increase substantially on the segment of VA 200 that connects Kilmarnock and Irvington as the 470-acre Hills Quarter Development continues to build out. Therefore, this segment will warrant four-lane consideration as development expands along this corridor.

Like VA 3, VA 200 links the County with outside markets and will become more important to the economy of the County in the future. Past improvements, such as the bridge over the Great Wicomico River, demonstrate that VDOT places a high priority on Route 200. Accordingly, it warrants a very high priority in the County's comprehensive plan.

VA 201: Although classified as a primary road, the segment between VA 3 at Lively and the Northumberland/Lancaster County Boundary is much less traveled than Route 200. In terms of VPD and condition, this segment of VA 201 is similar to a secondary road. However, the segment extending from VA 3 at Lively to VA 354 has a much higher VPD rating and is superior in construction to the remaining segments. It serves as a major artery for traffic enroute to Lively, Lancaster and other towns and villages located to the East and SE of the county. Attempts will be made to place maintenance of this road at a medium to high level of priority in the Comprehensive Plan.

c. Feeder Secondary Roads

These are secondary roads that serve as feeder roads to developed areas and primary circulation routes throughout rural areas of the County. They are identified on the Highway Plan as: (1) "existing collector roads," namely those running from one of the central corridor roads; and (2) "new collector roads" added to complete traffic circulation.

3. Planned Highway Improvements by VDOT

a. Primary Road System

VA 3: Four-lane extension beginning 1.5 miles NW of Kilmarnock and ending 4.8 miles NW of Kilmarnock, near Lancaster. Preliminary Engineering has been completed and right of way secured. However, further efforts are pending funding.

b. Secondary System

It is the desire of this community that all secondary improvement projects, both privately and publicly funded, be harmonious with the community and preserve aesthetics, history and environmental resources while integrating these innovative approaches with traditional transportation goals for safety and performance. Therefore, the design process should include community involvement using the AASHTO Green Book entitled, *"Policy on the Geometric Design of Highways and Streets"*, with additional guidance provided by the Federal Highway Administration's manual entitled, *"Flexibility in Design".* The intent of this approach is to provide guidance to the designer by referencing a recommended range of values for critical dimensions. Sufficient flexibility should be then be permitted to encourage independent designs tailored to particular situations.

Public funding of new road construction and improvement is provided through the Fredericksburg District Secondary System Construction Improvement Program. Current Fiscal Year allocations for Lancaster County are as follows:

*2022	$22,017	2023	$32,466	2024	$34,396
2025	$34,396	2026	$35,592	2027	$35,592

Total for the period 2022 to 2027 amounts to $192,459. (NOTE: This amount is 44% of the amount allocated for the period, 2013-2019. The funding for years 2013-2019 was only 19.3% of the funding for 2006-2012. This significant reduction in funding presents additional challenges to improving County roads and further highlights the need for a community approach to carrying out improvements.

* Actual funds; funds for remaining years are "projected."

c. Bicycle, Walking, and Water Trails

Lancaster County is ripe for trail development. An active, health-conscious population, beautiful weather year-round, and a unique and fragile environment make the County ideal for creating "green infrastructure". As development pressure continues, it is vital that the County plan, design and implement a strategic plan for trail, greenway, and open space systems approaches. By preserving and connecting available natural resources now, Lancaster County can ensure a more livable and sustainable future for its children and families. Across the country rapid growth and development of urban areas continues. At the same time there is strong demand for trail networks that access parks, public lands and communities. The presence of linear utility corridors in and around these urban and rural settings offers an enticing prospect for communities. Lancaster County has access to such a corridor with potential connections to other counties in the Northern Neck. As a result, the County should examine the potential for the creation of a trail capitalizing on the utility corridor with possible ties to the Potomac Heritage National Scenic Trail.

There are universal issues associated with building community support for trails of all types. For the community to take ownership of a linear park project, it is important that citizens be engaged in discussions regarding operations and maintenance, design ideas and concerns, access points, and other important issues.

Bicycle Trails are a non-roadway improvement linking residential areas with non-residential areas such as businesses, schools and historic or scenic sites. Bicycle Trails will continue to be promoted in growth areas. The following map, Bicycle Trails of Lancaster County, represents the plan for such improvements. As can be seen from the map, Lancaster County has adopted a series of Class III (shared with the existing roadway) bikeways that extend throughout the County. "Share the Road" signs have been installed on routes 354, 695 and 646 reminding motorists to make room for bicyclists.

Bike paths and sidewalks will be considered in the design of improved and new road projects. Small projects such as painting bike lane stripes on existing roadways with sufficient pavement width, minor grading, gravel compaction, and vegetation trimming will be undertaken as a means of improving safety and utility. Consistent with the plan, additional grant funding will be sought to carry out such larger projects as bridge widening, separate path construction, and shoulder paving. It shall be a policy goal to develop, through a regional approach consistent with the plan, trails that are suitable for use by bicyclists, pedestrians, and horse riders.

A new opportunity exists with the proposal of a trail connecting Kilmarnock, Irvington, and White Stone. TriWay is a proposed 9.5-mile trail that will create accessible, open space between the three towns using a bicycle and walking trail route that is proposed to use interior parcels and largely avoid roadsides.

With over 330 miles of shoreline, two tidal rivers, and numerous navigable creeks, there is ample opportunity for the creation of a blue water trail system. Two such

trails for Mulberry/Deep Creek in the upper end of the county and Little Oyster Creek at the lower end of the county have been created with assistance from the Northern Neck Planning District Commission. Maps and information are available at: http://www.northernneck.org/MAPS/lc_mulberry_&_deep_creek_water_trail_guide_web.pdf and http://www.northernneck.org/MAPS/lc_little_oyster_creek_water_trail_guide_web.pdf.

The County should recognize the diverse array of settings in which to paddle as well as historical and natural sights to view and take full advantage of this opportunity. The benefits to residents and visitors are many, but certainly include economic growth of a highly desirable type.

C. RECREATIONAL AREAS AND FACILITIES

1. Existing Recreational Sites

Recreational opportunities in Lancaster County consist of a mixture of public and private facilities and programs, both land- and water-oriented. Some of the more significant facilities are identified below.

a. Public Facilities

Belle Isle State Park - This 708-acre park is owned and operated by the Department of Conservation and Recreation, Commonwealth of Virginia and is a major asset to Lancaster County. The park is located on the Rappahannock River in the NW corner of the County, about 1 mile from Route 354. A newly constructed road (Route 683) leads from Route 354 to the park entrance. The Commonwealth of Virginia purchased the park in 1993. Belle Isle was the first park purchased after passage of a major Virginia bond referendum in 1992. The park is rich in both natural and cultural resources: tidal wetlands, extensive shoreline along the Rappahannock River, two creeks, and historic and prehistoric archeological sites. The park has numerous physical and recreational facilities.

1. Internal road network and parking areas
2. Restrooms
3. Deep-water boat ramp and pier, with adjoining parking
4. Hiking and bicycling trails
5. Picnicking areas, including two large shelters
6. Canoeing
7. Camping
8. Fishing
9. Bicycling
10. Fishing pier and boardwalk

Additional facilities are planned for the future.

Public Boat Landing at Greenvale Creek - This landing has a boat ramp and pier, and parking accommodations for several boats and vehicles. It provides boat launch accommodation for the lower portion of Route 354.

Public Boat Landing at Windmill Point – This boat ramp was opened on October 6, 2016, is located within the Windmill Point Marina Boat Basin, and features a wide concrete ramp with courtesy pier. The facility was named for Mr. Fred Ajootian, who served on the Lancaster Wetlands Board and lobbied extensively for greater public access to the water. The parking at this site is designed to accommodate both car top launches as well as trucks with boat trailers.

Public Schools - These sites provide excellent opportunities for active recreation, since each school has its own array of facilities. Many of the following facilities are available to the public through YMCA programs. Contact the schools and YMCA for details.

Lancaster High School features a large gymnasium, and outdoor stadium for football and soccer games.

Lancaster Middle School has a gymnasium, a complete and well-equipped auditorium, and outside playgrounds. LMS also serves as a storm shelter during those times of need, as required.

Lancaster Primary School includes a gymnasium, soccer field, outside playground equipment and open areas.

b. Privately Owned Facilities

Dream Fields – This is a privately financed, modern athletic facility near Kilmarnock. It includes seven baseball and softball fields and a concession area. It has excellent athletic utility for the youth of Lancaster County.

YMCA – As part of the Virginia Quality of Life initiative a new facility was completed in 2005 in Kilmarnock that greatly expanded the recreational opportunities provided over the old facility. This new facility has a wellness/fitness center, a full-court basketball gymnasium, two racquetball courts, a recreational center, meeting hall, adult group center, child-care center, and swimming pool, and it serves as the center for the local activities of the American Red Cross. An indoor pool complex has been added to this facility to provide year-round swimming activities.

Compass Entertainment Center- In 2020 a new business opened to the public providing a combined entertainment complex with movie theaters, indoor games and rock-climbing walls, go cart track, and other amusements. This facility is located just outside of Kilmarnock off Route 200 (Irvington Road).

Golden Eagle Golf Course and Restaurant- The Golden Eagle is the Lancaster County golf course and has complete golfing facilities including an on-site restaurant.

c. Other Facilities

There are other recreational facilities throughout the County that are not open to the general public. These facilities are also privately owned and often are open to individuals or groups by fee or by permission.

Several beaches exist along protected shorelines in Lancaster County. These beaches are often informal access areas, located on private property. The number of these has diminished greatly, especially over the last five years, as residences have been built and access has then been denied. Some are used by those familiar with the area and can be easily reached by boat. They should be evaluated to determine suitability for future development for public use. Regional plans have noted that the County's small ramps and old "steamboat landings" could be developed to provide additional public access to major water bodies in Lancaster County. The lack of public access to state waters and the work being done to address that issue is discussed in detail in Chapter Five – Access to State Waters.

There are a limited number of marinas in Lancaster County. Some are "membership" marinas, others are commercial marinas that offer boat storage, fuel, food sales, restrooms and boat repairs. Lancaster County's unique location at the mouth of the Rappahannock River, and the confluence of the Rappahannock and Corrotoman Rivers, makes the County one of the more popular destinations for recreational boating and fishing.

As previously indicated, there are numerous hiking and nature trails at Belle Isle State Park, as well as the Baylor Nature Trail located within the Town of Kilmarnock at Norris Pond off VSH 3 and the Western Branch of the Corrotoman trail accessed off VSH 3 between Lancaster Courthouse and Lively**.** Also of note is the Hickory Hollow Nature Trail located off Route 604 (Regina Road) near the intersection with Route 3 (Mary Ball Road). Located on a large tract of land, this trail offers several miles of hiking and features unique flora and fauna. Opportunity exists and efforts would be supported to expand this trail as well as create other nature trails through use agreements that would permit such activities as bird watching, physical fitness, etc.

2. Analysis

Lancaster County has access to miles of shoreline on the Chesapeake Bay, rivers, creeks and tributaries. However, at this time, there are limited public access points. While almost all of this land is owned privately, potential exists for further expansion of the currently limited public access. Sport fishing, recreational boating and sailing also provide a stimulus for summer tourism, thereby contributing greatly to the economy of the County through marine sales and operation of marinas, including repairs and fuel sales. The boats that are based permanently in the County also provide a significant contribution to the local economy. It should be a major policy of the County to promote the development of quality boating facilities for both public and commercial use. In the same sense, public beaches may also

contribute to the economy of the County while providing a major recreational service for local citizens. One needs only to look at the growth of other communities along the east coast to see that public beaches attract significant investment that satisfies a market for recreation. Sports and recreational boating combined with expanded beaches and beachfront development, offers a substantial opportunity for the growth of Lancaster County's economy and enhancement of the quality of life for citizens and visitors. The county is making, and should continue to make, efforts to acquire more public access sites.

As future plans are made for recreational facility development, the following general standards that have been used in other parts of Virginia as well as nationally may be helpful. These standards have been found to provide a satisfactory number and distribution of recreational facilities in typical communities. They may be adjusted as appropriate for Lancaster County.

Baseball and Softball fields: Baseball is played in almost all communities and by nearly all ages. Fields designated for youth baseball can also be used for adult softball since both use the same spacing for bases. The major difference is that baseball requires a little longer pitching distance and longer outfield. A rule of thumb for ball fields is that a community needs at least one ball field for every 6000 persons

Basketball: This is another popular activity among youth. Schools may provide enough basketball courts to meet this need if they are spaced throughout the community appropriately. Both the Lancaster High and Middle Schools have basketball courts, as does the previously mentioned YMCA. The general standard for basketball courts is one court for every 500-1000 persons. At this time, there are no public basketball courts in Lancaster County open to people without a membership fee in a park or similar setting.

Tennis: The demand for tennis depends upon the importance of this game to each locality. There is a state standard that suggests one tennis court for every 2000 persons. This rate can be adjusted to reflect the number of tennis courts available at school sites and at private facilities. The County must partner with the schools to determine the overall need for facilities. Currently, the Town of Irvington maintains two tennis courts, which may be enjoyed by town residents.

Swimming Pools: The state standard suggests a swimming pool for every 10,000 persons. At present a public swimming pool is not available in Lancaster County for swimming lessons or competitive activities. The Kilmarnock YMCA facility does have an indoor swimming pool for year-round swimming activities for members of that organization. This membership is open to the public, but is generally not free of charge.

NOTE: Future efforts to provide opportunities for recreation in Lancaster County should be focused on establishing a basic infrastructure of facilities similar to and in the amounts suggested above. The first step would be to identify sites for the facilities with the activities themselves being added, as funds become available.

D. SCHOOL FACILITIES

In today's complex society a well-educated population is an essential foundation to participate in the community's economic life. Lancaster County School Board operates three schools--Lancaster Primary, Lancaster Middle and Lancaster High Schools. Lancaster schools are also active participants in the Northern Neck Technical Center and Chesapeake Bay Governor's School in Warsaw.

The Lancaster School Board has the responsibility of setting policies and directing the school system into the twenty-first century. Except for budget approval, the school system is administered separately from the rest of County Government.

Policy matters regarding school administration, curriculum, and educational precepts are not a part of this planning report; however, it should be noted that education planning couldn't be undertaken without reference to community guidance and goals.

In addition to the public school system, planning for education in Lancaster County will include other educational facilities available locally and regionally. Some of the facilities in the local area include Chesapeake Academy, the Lancaster Community Library, Rappahannock Art League, the Lancaster Virginia Historical Society, and programs offered through the local Department of Social Services for completion of the G.E.D. Regional programs include programs at the Northern Neck Technical Center in Warsaw and Rappahannock Community College, at the Warsaw and Glenns Campuses and the Kilmarnock satellite location.

E. SOLID WASTE, WASTEWATER TREATMENT, AND WATER SUPPLY

1. Solid Waste Facilities

The County is currently served by a number of collection points at three locations throughout the county with one located off Nuttsville Road in the North end of the county, Regina Road in the North Central area of the county, and one site just outside of Kilmarnock off Route 200. Use of these collection points for disposal of solid waste is a service provided without additional user fees to individuals. Bins for recycling of plastic, aluminum, metal cans, glass, newspaper, and cardboard are also provided. Wood debris and wood construction debris may be taken to the Lively Woodyard on the same basis. This system has to date proven to be adequate with a respectable rate of recycling. At times of peak demand such as after a storm, there has been opinion expressed that another site for disposal of wood debris is needed. The County should determine the overall need and feasibility of such an additional site in the future. Current user demand sometimes exceeds capacity at the Kilmarnock White Pine Drive site. Expansion is needed at the Kilmarnock White Pine Drive site and sufficient land area exists on this site presently to accommodate a better traffic routing and waste receptacle layout. The county should begin to explore options for an additional site in the southern end of the county not currently well served with a collection point possibly located in the White Stone area.

2. Wastewater Treatment Facilities

The only municipal wastewater treatment facility is located in the town of Kilmarnock. In 2012, the County secured funding through various grants and low interest loans through the USDA Rural Development Program to construct a community wastewater treatment facility in the Greentown-Gaskins area of Weems, which has historically been plagued with poor septic suitable soils. With few exceptions, the rest of the County is dependant upon private septic systems for wastewater treatment (see 3-9, Septic Systems/Sewage Disposals). The Town of White Stone is currently developing a septic treatment facility located off Windmill Point Road, which will be able to serve the Town of White Stone.

Although a large portion of the residential development is located on rural lands, there is a high concentration of residential dwellings along the waterfront that are served by private septic systems. The lowlands located on the waterfront peninsulas include a significant portion of the County's wetlands. These lands are also subject to high water tables and raise concern of failing systems and possible contamination of ground water supplies.

Other more populated counties have had massive failure of septic systems and were required to provide alternate solutions for wastewater treatment under adverse conditions of time and financing. This may not happen in Lancaster County, but as we experience growth, we can expect increasing difficulties with proper treatment of wastewater. Therefore, a proactive, forward-looking approach to wastewater treatment that gives fair and careful consideration to all alternatives must be pursued.

a. Local Efforts

(1) The County will work with and cooperate with the towns of Kilmarnock, White Stone and Irvington, and private operators of wastewater treatment plants to enter into agreements as appropriate to address present and future needs for wastewater treatment.

(2) Investigate the need for further regulation or restriction on alternative sewage disposal systems

b. Outside Technical Assistance

(1) Increased monitoring of water quality by existing agencies to determine the impact of alternative sewage disposal systems, systems installed in areas with marginal suitability, and areas of densely placed or old systems.

(2) Development of a County wide long-range Wastewater Treatment Facility Plan to prioritize current and future wastewater treatment needs. The plan must address phasing and funding for service.

3. Water Supply

Currently, Lancaster County and the three Towns are dependent on the existing aquifers for

their drinking water (see 3-12, Groundwater). Should these aquifers become polluted or depleted, the County and Towns would be faced with the large expense of constructing a reservoir and treatment of surface water for consumption. Conservation and protection of the aquifers is the least expensive source, but requires the cooperation of the County, Towns, and adjacent counties.

4. Implementation

In addition to protecting the current potable water supplies (see 3-1, Protection of Potable Water Supply), the County's long-range plan should consider protection of the existing mill ponds (see 3-11, Potential of Surface Waters for Future Water Supply), in the event that they are ever needed. The County should consider adopting regulations and policies to control the type of development permitted in these sensitive areas.

F. HISTORIC RESOURCES

1. Introduction

Dating from 1651, Lancaster County is among the early jurisdictions established in the Commonwealth of Virginia that has kept its court records essentially intact and unbroken. Active stewardship of this heritage is in keeping with general tenor of the comprehensive plan of Lancaster County.

As agriculture and aquaculture have declined as economic forces in the county, tourism and retirement or second home construction has been on the rise. Tourists and potential residents are attracted to areas with a rich historic background. The County can benefit from initiatives aimed at protecting and, promoting its heritage.

Historic resources are defined to include historic documents, historical and archaeological sites, cemeteries and burial grounds, structures and districts. In Article 10, of the Lancaster County Land Development Code, a Historic Resources Ordinance is laid out and available as opportunities for preservation arise.

2. Inventory

A partial listing of the historic resources of Lancaster County includes:

Churches:

Christ Church
Lebanon Baptist
Morattico Baptist
St. Mary's White Chapel
White Marsh Methodist

Commercial Buildings:

Kemps and Carters Mill

Museums:

Lancaster Virginia Historical Society
Kilmarnock Museum
Irvington Steamboat Museum
Morattico Waterfront Museum
Historic Christ Church Museum

Residences:

Belle Isle	Levelfields	Midway	Pleasant Banks
Epping Forest	Lively Oaks	Monaskon	Pop Castle
Foxhill	Locustville	Holyoke	Verville
Level Green	Old George Home	Windsor	David Doggett House

Sites:

A. T. Wright School	Merry Point House
Chownings Ferry	Millenbeck
Corrotoman	Old Fort (Queenstown)
Levi Ball Home	Queenstown

Documents:

Lancaster County Court Records (from 1651)
Lancaster Virginia Historical Society (LVHS)

Lancaster Courthouse:

Former Courthouse Site
Current Courthouse
Old Jail
Old Clerk's Office
Well
Lancaster House (ca. 1790)
Lancaster Tavern (Chilton's House, ca. 1780)
Pillory and Stock Sites
Outbuilding Ruins
Lancaster Virginia Historical Society maintains the Old Jail and Old Clerk's Office, although the structures belong to Lancaster County.

3. Policy Goal

Preserve the historic resources and archaeological sites that reflect the heritage and historical significance of Lancaster County.

4. Objectives

a. Establish a historic resources preservation plan.

Lancaster County will continue to take a positive role in safeguarding the historic resources of the county. It will charge the Historic Resource Commission with the

responsibility for preparing a program whose goal is the identification and preservation of historic resources in the county. The plan will contain methods and schedules for the identification, evaluation, cataloging and protection of all significant resources. The Historic Resource Commission will enlist the support and advice of the historic, archaeological and other preservation societies in the county, region and state and will seek financial support for the program in the form of grants, bequests or other sources. The County will receive semi-annual status reports from the Historic Resource Commission about the progress and problems of the program. The Historic Resource Commission should involve the Lancaster Virginia Historical Society in this effort due in no small part to their large historical library and existing responsibility in maintaining the Old Jail and Old Clerk's Office.

b. Provide support for the Historic Resource Commission and the historic preservation and archaeological societies in the county.

Lancaster County will support the program, will review and strengthen existing ordinances and/or adopt new ordinances to improve the protection of its inheritance. Certification is needed to meet criteria for participating in a matching grants program. It is the intent of this objective to identify and encourage owners of appropriate historic areas to obtain H-1 zoning, Historic District for their site.

c. Encourage and support educational and other programs to increase public awareness of the heritage of Lancaster County.

Lancaster County will encourage and support the observance of a designated "Lancaster County Historic Resources Month." The County will publicize the event in various ways to attract visitors to the county. The planning and administration of this program will be accomplished by the local societies, coordinated by the Historic Resource Commission with the aid of the Historic Resources Coordinator. The Lancaster County Board of Supervisors will encourage the Board of Education to include the historical significance of Lancaster County in public education programs.

d. Develop a Historic "Overlay District" for the Lancaster Court House Village Area.

Both the Commonwealth of Virginia and residents of the Northern Neck consider the Lancaster Court House village an historic treasure. In order to preserve and protect this historical area and control conflicting uses, types of architectural design and site development, Lancaster County may develop boundaries and designate Lancaster Court House village as a Historic Overlay District, as permitted in Article 10-5; Zoning Ordinance.

G. MINERAL RESOURCES

Mineral resource development can have significant economic, social and environmental impacts at the local level. Mining has the potential to significantly benefit the local population through the creation of direct and indirect employment, skills transfer, and

development of small and medium business opportunities. Also, mineral resource extraction will increase the tax base of a county, which may potentially enhance health and education services and improve infrastructure. In recent years, state and local governments have been challenged to ensure that the benefits accrued from mining are monitored, mitigated and reclaimed so that the communities are better advantaged by the presence of mining activity. The local minerals mined are mostly used as road base material and in other aspects of construction fill. Development of new sites requires specific site permitting at the Board of Supervisors level. Concerns regarding the illicit use of these sites as dumps must be addressed as well as firm plans for the restoration of the site, once mining operations are complete. A possible compromise may exist in the agreement between a permittee and the county on transfer of the idle and restored mine lands for a public use in the future, once mining has ended. Reclaimed sand and gravel mines may make suitable park areas, if properly stabilized with trees and manageable slopes.

There are four active mine permits in Lancaster County, all of which are licensed to produce sand and gravel. In 2012 (latest data), there were 31,402 tons of sand and gravel produced in Lancaster County. Based on the Division of Mineral Resources (DMR) Publication 174, Digital Representation of the 1993 Geologic Map of Virginia, the sand and gravel is produced from the Sedgefield Member, Windsor Formation, and Chesapeake Group formations.

H. RESCUE SQUADS SERVING LANCASTER COUNTY

There are two volunteer Rescue Squads serving the citizens of the County:

- Kilmarnock-Lancaster Volunteer Rescue Squad with two stations
- Upper Lancaster Volunteer Rescue Squad with two stations

Until 2003 all rescue and emergency services were volunteer. With the increased demand for these services and the difficulty volunteers had in responding during working hours, paid rescue positions were created along with a Chief of Emergency Services. This has dramatically reduced response time, and has resolved a problem identified in the previous updates to the Comprehensive Plan. A future challenge now is the cost of such services and the mandated equipment and training updates that must be met.

I. FIRE EMERGENCY SERVICES

There are three volunteer fire departments that serve Lancaster County:

- Upper Lancaster Volunteer Fire Department
- Kilmarnock Volunteer Fire Department
- White Stone Volunteer Fire Department

Although tax dollars partially support fire emergency services, Lancaster County relies

entirely on volunteers to provide such services and is very fortunate that all of these departments meet the responsibilities placed upon them in the most professional manner. Equipment, which is subsidized in part by the County, is modern and well maintained, and personnel are well trained. By agreement, the departments are mutually supportive of each other and respond in strength as required to emergencies.

J. HEALTH SERVICES

With 13.3% (2020 U.S. Census Estimate via 2019 SAIPE) of residents at or below federal poverty levels and/or unemployed, and a disproportionate number of the population over sixty-five, there is a burden on the local health care system.

Rappahannock General Hospital, established in 1976 provides significant health care to the County and Towns in the area. The hospital's existence has attracted private physicians to establish practices within the County. In December 2014, Rappahannock General Hospital joined Bon Secours Virginia Health System.

The Commonwealth of Virginia operates the Lancaster County Health Department as part of the ten-county Three Rivers Health District. Services provided include permitting and inspection of water and wastewater treatment systems within the County.

The Northern Neck Free Health Clinic in Kilmarnock provides health, pharmacy and dental care to persons in the Northern Neck and Middlesex County who cannot reasonably be expected to pay for such care. This facility is partially supported by County tax dollars.

The Northern Neck Rehabilitative and Sports Medicine Center in Kilmarnock, a Virginia Quality of Life initiative operated by Rappahannock General Hospital, provides a wide range of physical therapy services.

These medical facilities and others not detailed here are a foundation for providing many of the health care needs for the citizens of Lancaster County.

K. SOCIAL SERVICES

Social services respond to a diversity of human needs and are essential for improving, maintaining and protecting the quality of life for all eligible people, and for the community as a whole.

Although social services are available for all segments of the population, serious problems continue to exist within the community.

These problems include:

- Lack of employment opportunities providing a median or above income and its negative impact, particularly on young people.

- Lack of funding for low-cost housing and public transportation.

- Need for positive role models from whom young persons could gain inspiration and motivation.

- Breakdown of the family unit.

- People living in poverty needing parenting skills, education, training, the development of positive values and attitudes.

- Substantial numbers of citizens in the second and third generations of dependency on the Social Services System.

- The need for changes in Federal and State legislation, policies, and procedures, that, in the long range, would help eliminate dependency on Social Services and provide an incentive for self-sufficiency.

It is recognized that a sound local economy, available jobs, reasonable taxes, and adequate salaries tend to solve many social problems without State and Federal programs. It shall be a policy goal to promote self-sufficiency among individuals and families, and provide assistance to those who are unable to provide for themselves, through mandated and optional programs and community support.

L. ELECTRICAL SERVICE AND GRID

Modern electrical alternating current (AC) power has become essential to modern homes and daily life. Lancaster County is served by two major energy suppliers, Northern Neck Electric Co-op (NNEC) and Dominion Energy. These two suppliers provide nearly all of the electricity for Lancaster County homes, businesses, and medical care. In general, the western side of the county is served by NNEC and the eastern and southern end supplied by Dominion.

The main transmission line rated at 115 KV comes into the county from the Richmond/Lancaster line near Chinns Mill Pond and crosses Lancaster Creek running in a south easterly direction. From here, this line parallels Bellwood Swamp and crosses route 3 just north of the Lancaster Courthouse. This line continues south and supplies Kilmarnock with power as well as White Stone. This same transmission line meets the Rappahannock River just to the south of the Norris Bridge and continues underwater to Middlesex County.

No major grid-tied electrical generation takes place in Lancaster County. In the last ten years the ability to generate moderate to major sources of electricity through solar power development has begun to move ahead in some areas. Solar energy developers have expressed an interest in Lancaster County and the county has developed a Utility Scale Solar Ordinance to address the development of these projects, if approved. To maintain the rural nature of the county and fulfill the goals of this Comprehensive Plan, these developments should locate in close proximity to the main grid transmission line to the best of practical

ability. Utility Scale Solar Facilities should not be proposed within the view or impact area of any cultural, historical or recreational resources of the county. The main roadways defined by the Highway Corridor Overlay District Ordinance should have extra consideration and distance for buffering from scenic impacts.

Being so far from other sources of electrical generation, Lancaster County should plan so that the wider citizens may benefit from renewable energy projects with greater grid resiliency and local energy revenue. Projects are required to have a robust plan for protecting the air, soil, and water of the county during construction and operations as well as providing for clear and guaranteed ways that the land will be restored to full use once the project is no longer needed without burdening the taxpayers with cleanup expense during decommissioning. To further meet this goal, projects should only be proposed and approved on lands that are not considered Highly Erodible (HEL) according to the United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). Slopes at or above 5% should be avoided, if possible. Wetlands are of prime importance as they provide a major key to safe drinking water and are the source of a tremendous amount of aquatic life that forms the food chain.

The current Utility Scale Solar ordinance exempts most privately-owned small-scale facilities for residential, business, and farm use. This is in an effort to encourage this sort of power diversification and resiliency. Projects on roof tops and located in yards will be treated in a manner similar to other structures, such as carports and sheds.

M. BROADBAND INTERNET SERVICE

Recognizing the need to expand broadband throughout the County, in July 2018 the Lancaster County Board of Supervisors authorized the creation of the Lancaster County Broadband Authority (LCBA), and the LCBA received its Certificate of Incorporation to operate on October 22, 2018. In its efforts to ensure equitable and universal broadband for all residents of Lancaster County, the LCBA is partnering with Atlantic Broadband and All Points Broadband to expand their networks throughout the County. The LCBA's near term goals are to meet and exceed the Federal Communication Commission's specifications for broadband internet services and to have the service available to all as quickly as possible. This goal is anticipated to be accomplished by the third quarter of 2024. While working to achieve universal service for County residents, the LCBA will continue to work with internet service providers to further improve the County's internet infrastructure to gb/s service to all parcels in the County. The LCBA shall endeavor to leverage new federal, state, foundational, and other funding opportunities to enhance current service provider's networks or introduce new providers to the marketplace. In five years, the LCBA goal is to have the County's internet infrastructure utilizing the latest fiber technology that will be reliable and affordable and for the County's residents to have a choice of service providers.

Chapter 7 – Land Use and the Economy

In November 2018 Lancaster County initiated the update of the 2013 Comprehensive Plan. The purpose of the update is two-fold. The first is to meet the statutory requirement (Title 15.2-2223 of Virginia Code) that localities review their Comprehensive Plan at least every five years and second, to review and update guidance and tools to manage land use to preserve the County's natural beauty and rural character. Recently cited as "One of the Best Places to Live" in *Progressive Farmer* magazine, the County can expect to receive increasing interest from retirees and others attracted to its unique scenic resources, extensive waterfront and high quality of life. Many would agree with Captain John Smith's assessment, made over four hundred years ago in 1608, that the County is "a place where heaven and earth never agreed better to frame man's habitation."

The following primary issues emerged through the course of the review:

- Preserve the County's rural character
- Preserve the quality of the County's waterfront
- Manage the quality and character of future development (i.e., prevent sprawl and 'checker board' development).
- Preserve and increase public access to the county's waterfront
- Preserve historic character, buildings and sites
- Increase the supply of affordable housing
- Pursue economic development and increase jobs, particularly for young people and working-age adults
- Protect the watershed, groundwater, aquifers, drinking water, and waterways and ensure the adequate supply of potable water
- Concentrate higher-density commercial and residential development in appropriate areas, particularly around existing villages and towns
- Increase recreational opportunities including parks, hiking/biking trails and public access to water.
- Address Utility Scale Solar Facilities and their potential benefits and impacts. Find ways to appropriately site these facilities on the land.

The issue of protection of water resources is primarily addressed in Chapter 3. The remaining land use and subdivision issues have been organized into six major themes or elements:

I. Land Use Tools
II. Quality Growth
III. Rural Character and Maritime Heritage
IV. Recreational Opportunities
V. Quality Housing and Diverse Communities
VI. Economic Development

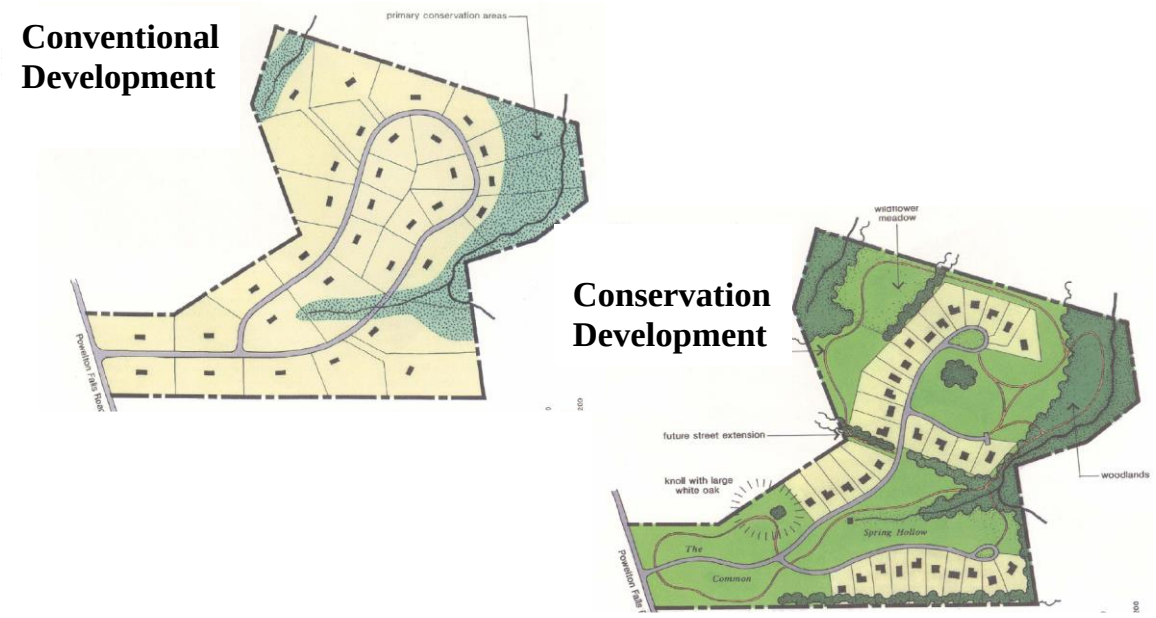
I. LAND USE TOOLS - Discussion and Objectives

The following pages describe selected programs and approaches that have been or will be considered by Lancaster County for implementation.

Conservation Development/Design

The terms ‘cluster development,’ ‘conservation subdivision or design,’ and ‘open space design’ are often used interchangeably to refer to a form of land development in which new homes are grouped together with the remaining land preserved as open space. The primary purpose of conservation development is to protect farmland and/or natural resources while allowing the same number of residences under existing zoning and conventional subdivision regulations. Some communities allow a greater density in their local ordinances to encourage this approach to open space planning.

The following graphic indicates a ‘conventional’ approach to site design, where the maximum amount of open space is allocated on a per-parcel basis. The other graphic illustrates a ‘conservation’ based approach.



Randal G. Arendt- Conservation Design for Subdivisions 1996

Both concepts propose 32 building lots, however the second graphic preserves a much larger portion of the site in common open space. The grouping of homes on one part of a tract is the primary difference between conservation development and conventional subdivisions.

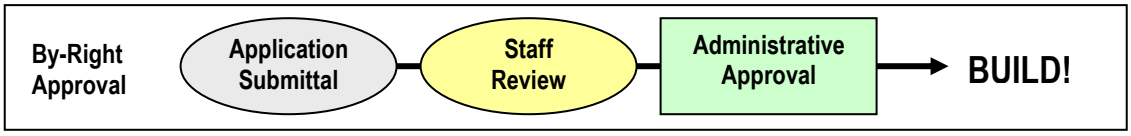
Conservation development is an option for subdivisions containing six or more lots. The requirements for the amount of open space varies from 30 percent in the R-4, Residential

Community District to 70 percent in the A-1 Agricultural Limited District. Even conventional subdivision requires 10 percent open space for subdivisions of six or more lots.

Development Approval Process/Expedited Permitting

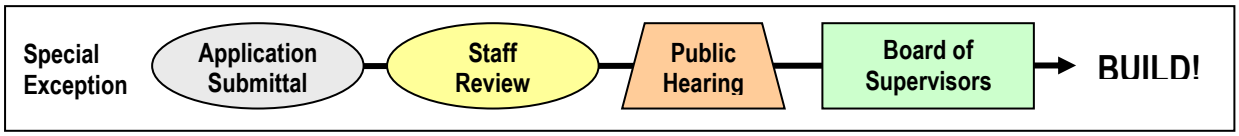
By Right

Most development that occurs is "by-right." This means that the project meets all zoning requirements and is allowed to proceed with only administrative approval. In the case of Lancaster County, the Zoning Administrator is charged with approving all by-right applications and in many cases, all that may be required is a permit indicating compliance with the Zoning Ordinance.



Special Exception

Some uses and developments require "special exception" from the Board of Supervisors. This is typically because the nature of the use or development is such that more intense scrutiny and discourse is required. For example, *special exception* approval is required to open an equestrian academy in the A-1 zoning district. In this case, the Zoning Administrator would review the application, make a recommendation for approval or denial, and pass it to the Board of Supervisors for final decision. The Administrator would also advertise that a public hearing is scheduled for the Board of Supervisors. At the hearing, the community would be provided an opportunity to comment on the proposed application. At this time, the Board may (or may not) approve the application. Alternatively, the Board may approve the application but impose conditions and restrictions on the project.



Tailoring the development approval process to achieve desired goals can be a relatively simple and low-cost task. Certain standards may have to be modified and clarified to ensure that adequate protection is provided and that the rules themselves are easy to interpret.

Other land use tools that may be considered:

Exclusive Use Zoning/Agricultural Conservation Zoning Districts

Some communities establish agricultural conservation zoning districts that are very restrictive in the range of uses that they allow. In many agricultural conservations zoning districts, only

Permitted Uses in an Agricultural Conservation District:

- Farming
- Forestry
- One household per farm
- Hunting/Fishing

farming or forestry (and other similar uses that have minimal development impact) are allowed. Other types of development, such as residential subdivisions or commercial development would not be allowed. This means that a rezoning to a residential or commercial zoning district would be required for anything but farming or forestry.

Purchase of Development Rights/Transfer of Development Rights

In the fall of 2001, the Virginia General Assembly appointed a Farmland Preservation Task Force through the Department of Agriculture and Consumer Services to address growing concerns over the loss of agricultural land in the Commonwealth. The task force developed a report, *A Model Purchase of Development Rights (PDR) Program for Virginia*, after numerous meetings with representatives of jurisdictions with PDR programs within Virginia and in other states. According to a report published by the USDA, Virginia lost farmland at the rate of almost 2,000 acres per week in 2021. There was a loss of 800 farming operations during the year. That is a rate of about 15 farms per week. In 2021: Virginia farms dropped from 42,300 to 41,500.

Under a PDR program, a landowner voluntarily sells his or her rights to develop a parcel of land to a public agency or a charitable organization charged with the preservation of farmland. The landowner retains all other ownership rights attached to the land, and a conservation easement is placed on the land and recorded on the title. The buyer (often a local unit of government) essentially purchased the right to develop the land and retires that right permanently, thereby assuring that development will not occur on that particular property. In placing such an easement on their farmland, participating landowners often take the proceeds from sale of the development rights to invest in their farming operations or retire from the business, allowing another farmer to purchase the land at lower rates.

Virginia Code provides even broader possibilities for purchasing development rights. Part of the Virginia Land Conservation Fund's purpose is to acquire property for the protection or reservation of ecological, historical or cultural resources. The criteria include provision for grants to localities for PDR programs. (§10.1-1020 Virginia Land Conservation Fund. Purposes of Foundation. Code of Virginia. Title 10.1 CONSERVATION. Chapter 10.2 Virginia Land Conservation Foundation. §10.1-1020 Virginia Land Conservation Fund. Purposes of Foundation).

While a PDR program is another tool for farmland protection, a main concern is the County's ability to administer the program given its current limited staff resources, especially over extended periods of time (10 – 20 years). Provided the County can fund a PDR program in an amount sufficient to make significant land preservation possible, a PDR program could be successfully used in Lancaster County to preserve large amounts of farmland and open space. Under a typical PDR program, the land can continue being farmed or harvested, thus maintaining the 'rural character' of the County. By compensating the property owner for the right to develop his or her land, the County mitigates any economic hardship that may befall someone who is "land rich but cash poor." However, the challenge is to develop a consistent and continuing funding mechanism for the program.

Transfer of Development Rights (TDRs) have much the same objective as PDRs in that they are designed to protect sensitive areas from development by permitting or requiring the transfer of development from a location deemed unsuitable to a location considered more appropriate. The **sending zone** is an area where development is discouraged, or the area from which development rights are sent. The **receiving zone** is an area where land use planning would dictate that development should occur, or the area that receives the development rights. Landowners in the receiving zones can purchase development rights from landowners in the sending zones with strict development restrictions then being placed on the landowners in the sending zones. Successful TDR programs such as the one in Montgomery County, Maryland are exceptionally rare throughout the country with the designation of sending and receiving zones cited as the primary obstacle.

Conservation Easements/Land Trusts

A conservation or open space easement is a legal contract made between a landowner and a public body or qualified conservation organization. Generally, the conservation organization buys the development rights for the property. The easement limits present and future property development rights. It allows you to live on the property and use it for its traditional use (e.g., as a farm, forest, open space, and/or natural area) but protects it as well. The easement is legally recorded and bound to the deed of the property permanently.

Each easement is tailored to the specific characteristics and uses of the given property. Timber harvesting, farming, primary residences and other uses may continue while the land's unique characteristics - prime soils, endangered species habitat, wetlands, etc. - are protected. The easement protects the property's natural or open space values, assuring the land's availability for agriculture, forestry, recreation, or open-space use, thus protecting natural resources, maintaining or enhancing air or water quality, or preserving historical, architectural or archaeological aspects of the property.

Easements rarely allow public use of the property. The "holder" of the easement, i.e., the land conservation organization with whom the landowner entered into the easement, is responsible for enforcing the protective covenants of the easement and is therefore allowed to conduct periodic inspections of the property. The landowner retains all rights to the property except for restrictions on future development rights specified in the easement.

Natural Area Dedications are a conservation option available to landowners of highly significant natural areas. The landowner retains ownership and transfer rights of the land while voluntarily restricting land uses that are incompatible with the conservation needs of the natural area.

To be eligible for this program, a property must include one or more of these natural values: habitat for rare, threatened for endangered plant or animal species; rare or state significant natural communities; and rare or state significant geologic sites.

There may be financial incentives for dedicating land. Examples include possible reduced

assessment for real estate purposes, reduction of federal estate and Virginia inheritance taxes, and a charitable deduction for state and federal income tax purposes.

Virginia's Registry of Natural Areas program encourages voluntary conservation of significant lands in private and public ownership. To be eligible for placement on the registry, a property must also support significant natural heritage resources for Virginia. The decision to register is entirely the landowners. There is a voluntary, non-binding agreement that may be terminated by either party at any time.

For more information see:
www.dcr.virginia.gov/dnh/registry.htm.

Land Trusts in Virginia
Virginia land trusts include The Virginia Outdoors Foundation, The Virginia Chapter of the Nature Conservancy (TNC), the Chesapeake Bay Foundation, the Northern Neck Land Conservancy, and the Lower James River Association. As of 2022, approximately 59 parcels with a total of 3,177.32 acres have been preserved in Lancaster County through conservation easements with these organizations.

Lancaster County has adopted its own Conservation Easement Ordinance (Article 27 of the Zoning Ordinance) which creates a program for the County to co-hold (with qualified non-public bodies) conservation easements voluntarily offered by landowners. This program will serve as one means of assuring that the County's resources are protected and efficiently used and will help in preserving open-space, farmland and the rural character of the County.

Buffering

In rural areas, buffers are most commonly used for two primary reasons – to minimize the visual impact of a development – and to reduce the potential conflicts between residences and adjacent uses (i.e., farmers spreading manure, operating loud machinery, etc.). Seventy-five feet of native vegetation is a fairly typical requirement. The native vegetation helps to avoid the appearance of a suburban, homogenous development and helps to achieve the goal of retaining a community's rural character.

Buffers can make an area appear relatively undeveloped by screening buildings from the roadway. One of the most famous, and effective, examples of roadway buffers is in North Carolina's Research Triangle Park. Seen from the

Research Triangle Park, NC

roadway, the Park seems like a densely wooded forest. However, as the photo to the right shows, large tracts of the park are occupied by very intense development.

Buffers can maintain a rural setting but do relatively little to actually preserve a rural, agrarian lifestyle or protect the environment. The area behind a thick buffer may be 100% cleared and this would be unknown to the casual passer by.

In order for a buffer to be effective at maintaining an undeveloped appearance, it has to be thick enough (have enough opacity) to effectively screen the buildings. Depending on the maturity, type and spacing of the vegetation, fairly deep buffers may be required. This may impose a hardship on landowners and business owners who may be forfeiting large portions of their land to buffer area or are struggling to attract customers because their businesses are hard to see.

In many parts of the County, lands have been cleared for farming and there is little existing vegetation that would serve to screen new buildings. In these cases, berms must be erected and new plantings installed. Until these plantings achieve maturity (which may take up to 10 years), much of the new buildings may be visible.

Right-to-Farm Ordinance

A *right-to-farm* ordinance is not directly related to land use and may be considered more of a statement of intent and an educational piece regarding a locality's prioritization of the rural farmer.

Such measures generally have little regulatory effect, but seek to reduce the opposition of urban neighbors to commercial agriculture as a nuisance generator. Many ordinances require that homebuyers who move to parcels adjacent to or near working farms be notified about the possible negative impacts of agricultural activities. In this way, the theory goes, new residents- especially those unfamiliar with rural living- would effectively learn about the realities of modern farming and would be less inclined to complain, or even go to court, about sprays, dust, odors, noise and other aspects of agricultural activities. The normal practices of farmers would thus be protected.

Right-to-farm ordinances can supplement the statutory protections that are provided by Section 3.1-22.28 of the Virginia Code that guarantee the right to farm and provide additional protection from nuisance lawsuits by individuals seeking to interrupt the operation of a farm or logging operation. Lancaster County does not currently have a separate *right to farm* ordinance.

A *right to farm* ordinance would allow the County to emphasize and very publicly

declare its commitment to preserving its farmland intent and its farming heritage. It may create some additional work for the County as it goes about the process of notifying landowners moving into properties near farms, but the costs or effort are not great. Another approach may be to develop flyers or notices that are distributed to all real estate agents practicing in the County that they may deliver to prospective homebuyers.

Mixed Housing Types

Residences within a conventional residential subdivision typically have one type of construction, parcel size and subsequent purchase price. Unfortunately, this lack of diversity in housing type and cost often means that most new homes are out of the price range of many County residents. Housing can often be made more affordable by allowing for higher densities and a mix of housing types and income levels.

Developments with mixed housing types are becoming more commonplace as this segment of the market matures, and some communities are even mandating a mixture of different densities (this is still relatively rare). Design and performance standards can ensure compatibility between the different types of housing and buffering around the development can provide transitions to adjoining properties.

One approach that could be considered would be to allow housing type mixtures in a conservation development. With appropriate development standards, different styles of housing could be incorporated into a project that is almost invisible from the public roadway and adjoining properties. Furthermore, a reduction in the amount of infrastructure and site preparation needed to develop a more compact site could reduce overall construction costs and the corresponding price of homes.

Lancaster County's R-4, Residential Community District, allows mixed housing types with density bonuses to help create more affordable housing.

Lot Standard Reductions

Garden homes and zero-lot line developments are examples of development types where reduced setbacks can result in a more affordable housing product, while still maintaining privacy and adequate separation between homes.

Reducing lot size and setbacks can also allow more dwelling units on a more compact portion of a project which in turn can decrease the cost of housing in a development and provide more common open space.

When used in combination with enhanced project buffering standards, a reduction in development standards for properties located on the interior of a housing project may be unnoticeable to passersby.

Lancaster County's Subdivision Ordinance, Section 5-26, allows reduced lot sizes and setbacks in exchange for increased open space under the conservation/cluster design.

II. QUALITY GROWTH - Discussion and Objectives

The County desires to encourage well-managed growth that is consistent with the rural nature of the County, preserves the natural beauty of the County's land areas and shoreline, and ensures careful development of waterfront areas. Character areas have been identified to describe the desired land use patterns and characteristics and to serve as a guide for future land use decisions. The Character areas are shown on the County's Future Land Use Map and illustrate the desired location and pattern of future land use, including the type and intensity of new residential, commercial or industrial development.

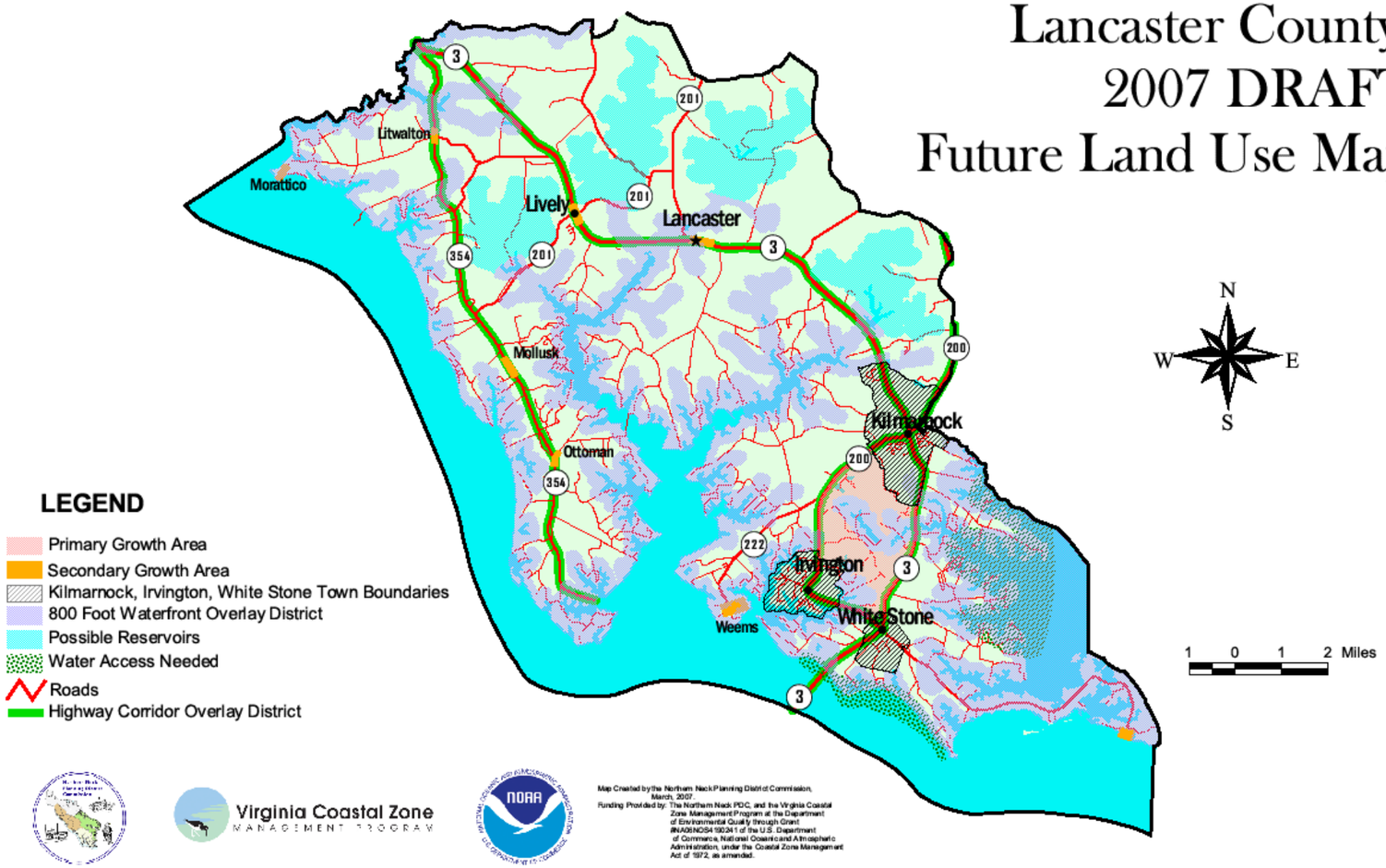
Goal: Ensure orderly and well-managed land use that protects the County's natural beauty, quality of life and its communities.

A **Planned Growth Area (PGA)** includes existing locations of the highest level of residential, commercial, employment, and industrial activity with the highest level of existing public infrastructure, including public water and sewer. Most community services, such as hospitals and places of higher education, are located in the PGA. The primary centers of commercial and development activity in the County are the three incorporated towns of Kilmarnock, White Stone and Irvington as well as designated rural villages. The unincorporated area located between the towns, in a roughly triangular shape, as depicted in the following map, along with areas located in close proximity to but not necessarily contiguous with this roughly triangular shape, is designated as the PGA for the County.

Heavy industrial and manufacturing activities with significant noise, air quality and water quality impacts, are not considered appropriate for Lancaster County.

- Higher density residential and commercial activity will be directed to the PGA.
- Incorporated towns are not prohibited from proposing contiguous expansion of their boundaries to areas within and outside the PGA consistent with state law for such a process.
- Investments in new or improved public infrastructure and community services will be first directed to the PGA.
- The extension of municipal water and wastewater treatment lines to all areas of the defined PGA is permitted.
- Generally, appropriate development in the PGA includes medium-density single-family and multi-family housing.
- Existing agricultural activities will be allowed to continue.

Lancaster County: 2007 DRAFT Future Land Use Map



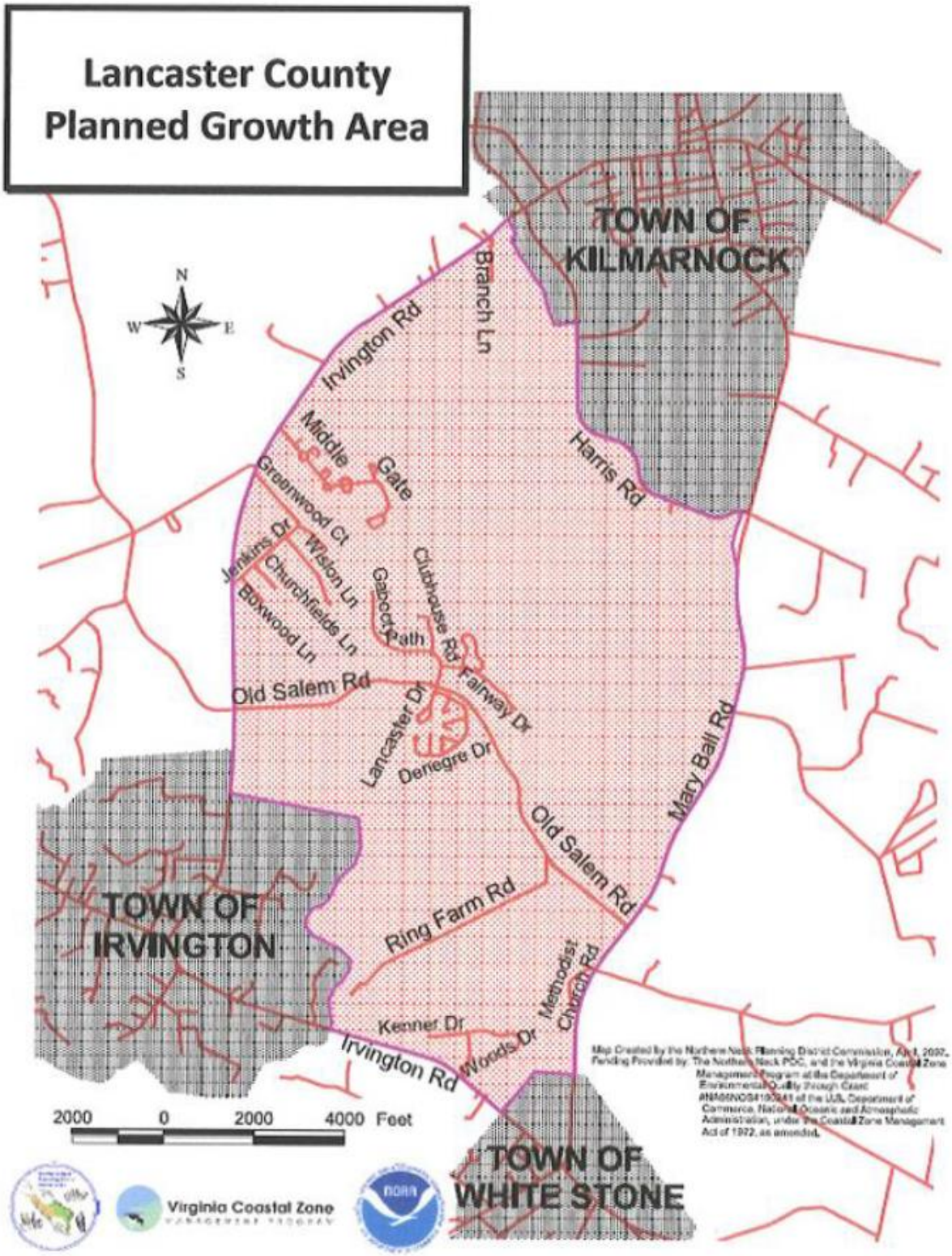
LEGEND

- Primary Growth Area
- Secondary Growth Area
- Kilmarnock, Irvington, White Stone Town Boundaries
- 800 Foot Waterfront Overlay District
- Possible Reservoirs
- Water Access Needed
- Roads
- Highway Corridor Overlay District

Virginia Coastal Zone MANAGEMENT PROGRAM

NOAA

Map Created by the Northern Neck Planning District Commission, March, 2007.
Funding Provided by: The Northern Neck PDC, and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA06NOS4190241 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.


Lancaster County
Planned Growth Area
TOWN OF
KILMARNOCK
TOWN OF
IRVINGTON
TOWN OF
WHITE STONE
N
W
E
S
Irvington Rd
Branch Ln
Middle
Gate
Greenwood Ct
Jenkins Dr
Churchfields Ln
Wilson Ln
Boxwood Ln
Gapcott Path
Clubhouse Rd
Fairway Dr
Old Salem Rd
Lancaster Dr
Deniegre Dr
Harris Rd
Mary Ball Rd
Old Salem Rd
Ring Farm Rd
Methodist Church Rd
Kenner Dr
Woods Dr
Irvington Rd
2000 0 2000 4000 Feet
Virginia Coastal Zone

Rural Villages are appropriate for concentrating residential and commercial development and are therefore also designated Planned Growth Areas. There are several traditional village centers located at key crossroads throughout the County that were once centers of residential development and commercial activity.

Four of these villages - Lancaster, Lively, Morattico and Weems - are the most suitable locations with Lively being the only currently adopted rural village. Generally, appropriate development includes medium density single-family housing, multi-family housing, and small to medium-scale retail activity, offices, and light manufacturing uses with appropriate development standards to ensure compatibility.

The Rural Villages of Lancaster County:
Lancaster County is fortunate in that many of the historic crossroad communities remain relatively unchanged from their early days as points of trade or commercial development. The Comprehensive Plan recognizes that preservation of this character is important to preserving the County's history. Furthermore, the Plan recognizes that no two rural villages are the same. Therefore, the County has developed the Rural Village Overlay District that is intended to be applied to the villages of Lancaster County.

The Rural Village Overlay ordinance contains two parts: A **guiding plan** that describes the various development characteristics and design guidelines for the overlay; and a set of overlay **district standards** that provides dimensional requirements, a schedule of permitted uses, and other development requirements that must be satisfied. The guiding plan and standards must be tailored to accommodate appropriate development patterns for the particular rural village or other area where it is being applied and reflect local community input.

Rural areas include those areas that the County wants to retain as farmland and open space. Locations include prime farmland areas and land that is unsuitable for development due to environmental constraints. Rural areas may also be appropriate for compact residential development occurring in conservation subdivisions. Well-designed conservation subdivisions offer far greater opportunity for significant open space than do conventional subdivisions. They also can help to mitigate or avoid the 'checkerboard' development or sprawl by allowing for efficient and creative residential development. They typically allow access to and enjoyment of open space over large-lot subdivisions where the benefit of the undeveloped area or 'open space' is primarily retained for the homeowners only. The retained open space can serve as active and/or passive recreation space for residents and the wider community. The increased design flexibility allows for septic systems to be placed on the best-suited soils on the individual parcels or to be located 'off-site' including in the open space area. Development intensity (density) in conservation subdivisions should not exceed allowed densities for the district, except through a design review process that allows community involvement such as those proposed as workforce housing. These areas are also suitable for forests and forestry, parks and recreational space.

Residential areas include primarily those areas in the County that have already been approved for residential development or have been developed for residential use. Recognizing that many of these areas have already been developed, new development in the vicinity should reflect existing defined development patterns and be sensitive to

established context. Residential areas are located in proximity to the larger towns and concentrations of development. These may also be located in the Planned Growth Area as previously stated.

Reservoir overlay districts include eight potential impoundment or reservoir sites identified in a 1973 study. These sites will be further studied, and decisions will be reached on which of these sites and their adjoining watersheds should be protected from intensive development. Ensuring an adequate supply of drinking water is important, as the County is entirely dependent on groundwater for its drinking supply. There are well-founded concerns that groundwater alone is insufficient to accommodate the County's needs. Appropriate activities in these areas are those with a relatively small "footprint" such as low-intensity agricultural and timbering uses, open air and low-polluting commercial and industrial uses including timber storage, and very low-density residential development. Uses which have the potential to contaminate the ground (certain industrial and manufacturing uses) should be prohibited. Uses with high infrastructure and capital investment costs should be discouraged from locating within areas identified as potential reservoir sites.

Historic Districts and Places include sites and buildings that are listed on the National Register of Historic Places, the Virginia Landmarks Register and other identified areas of historic or archeological significance.

Public Parks and Recreation includes publicly owned or controlled parkland and recreational sites.

Public Lands and Facilities
This category includes all publicly owned lands such as County or State offices, schools, libraries and any publicly owned or controlled water access points.

Towns/Incorporated Areas
This category includes the three towns of Kilmarnock, White Stone and Irvington.

Waterfront Overlay District
The County wishes to encourage development that preserves the natural beauty of the shoreline and ensures careful development of waterfront areas in a manner that will reduce the risk of water quality degradation in the Chesapeake Bay and its tributaries. To accomplish these goals, the County's Land Development Code includes the Waterfront Residential Overlay that applies to parcels, within all zoning districts, recorded on or after May 11, 1988, which are for residential use or residential development and lie within 800 feet of tidal waters and wetlands. The regulations apply to the first 800 feet landward from tidal shores and wetlands for large parcels having a depth of 800 feet or more as measured landward from the shores or wetlands. Wetlands include tidal and non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams. Development within the waterfront residential overlay district must conform to the requirements of both the overlay and the underlying base district or the more restrictive of the two. To protect the water quality of the Chesapeake Bay and its

tributaries, development along the County's shoreline will continue to consist of low-density residential development.

Objective II-A:

Make growth and development consistent with the Future Land Use Map and the County's Vision Statement.

Strategies:

- Utilize the County's traditional village-oriented development to encourage the concentration of higher intensity land uses to help retain the County's rural nature, meet the needs of citizens throughout the County and maximize the efficiency of public infrastructure and services.
- Encourage all Future development and land use decisions to be consistent with the Future Land Use Map and character areas.
- Concentrate commercial and residential development in appropriate areas, particularly around existing villages and between towns.
- Discourage development of areas with poor soils, high water tables, steep slopes or areas with other environmental constraints.
- Promote and participate in the development of a Regional Land Use Plan for compatible land use at the borders of jurisdictions.
- In coordination with an economic development program that identifies the type of industrial and commercial development desired by the County, identify the most appropriate areas in the County for location of supporting facilities and infrastructure.

Objective II-B:

Ensure new development complements and enhances character and quality of existing neighborhoods and communities.

Strategies:

- Evaluate rezoning and special exception permit applications to ensure consistency with the Comprehensive Plan and compatibility with the character of the surrounding area.
- Ensure that the scale, character and density of new development are compatible with adjacent land uses.
- Encourage development with design features such as varied building orientation and setback, lot size, façade treatment, open space and landscaping to help avoid the visual repetition of suburban sprawl.

- Reduce the number of permitted uses in existing zoning districts to avoid mixed, incompatible uses within a zoning district (especially the agricultural districts).

Objective II-C:

Protect potential future reservoir sites to ensure the provision of adequate water supply.

Strategies:

As further explained in Chapter 3, the following strategies are included to ensure protection of the county's water supply.

- Eight potential impoundment or reservoir sites were identified in a 1973 study. Preserving these sites to meet future demand is very important for a County that is entirely dependent on groundwater for its drinking supply. The County should create a special reservoir overlay zone to protect the impoundment areas from encroaching development.
- Create a new or join an existing State Water Management Area.
- Pursue coordination with the Northern Neck Planning District Commission to join a regional Water Management Area.

III. RURAL CHARACTER AND MARITIME HERITAGE – Discussion and Objectives

Lancaster County is fortunate to have retained many of the aesthetic qualities ascribed to rural areas: beautiful roadways through forested acreage; postcard-like vistas of open water, wetlands, and marshes; and picturesque villages and hamlets (many of which are on the water) that are the commercial and cultural centers of any rural community. It is important to emphasize that these waters and rural lands are not sitting vacant or unused. Watermen are still plying their traditional crafts, most farms are still engaged in active agriculture, and many forested areas are used for ongoing timbering operations.

Lancaster County's rural character…

Physical Appearance

- *Farmland*
- *Waterfront*
- *Natural unspoiled vistas and viewscapes of both land and water*
- *Connections to land and water*
- *Small town feel*
- *Rural roads*
- *Open space*

Activities

- *Farming*
- *Timbering*
- *Hunting*
- *Boating, Sailing and Kayaking*
- *Seafood Harvesting*

Goal: Preserve Lancaster County's rural character and maritime heritage

Retaining the County's rural character and maritime heritage involves five objectives:

A. *Preserve and promote our maritime heritage, the watermen who continue it, and our waterfront recreational and service industries.*
B. *Protect farmland and agricultural resources*
C. *Preserve, protect and promote agricultural activities*
D. *Preserve the county's historic resources*
E. *Preserve open space and views along roads and waterways*

The following section provides a detailed description of each policy and identifies objectives and strategies for implementation and successful achievement.

Objective III-A:

Preserve and promote our maritime heritage, the watermen who continue it, and our waterfront recreational and service industries

With over 330 miles of shoreline, two tidal rivers, and numerous navigable creeks, maritime industries and water-oriented recreation have always been critical components of our economy. As the stocks of our commercial fishery products have declined over the years, their contribution to our economy have declined accordingly. Water-oriented recreational activities and interest in our maritime heritage and the resultant tourism and movement of relatively affluent retirees to our area have assumed major importance.

Though fishery stocks are somewhat cyclical, and even now the future of oystering appears somewhat more promising, it is very unlikely that these commercial fishery sales will ever assume their former volume. Which is not to say that they are unimportant. In fact, they are of critical importance in bringing tourists interested in our maritime heritage and seafood products and retirees (the major engines of our economy) to our area. The following strategies are designed to preserve and promote our maritime heritage industries and water-oriented business activities and encourage the development of new ones.

Strategies:

- Identify active commercial fishery operations and ensure that County land use decisions on nearby properties are not necessarily detrimental to these waterfront activities. Educate the public to the fact that the contribution these heritage industries make to the economy of our area, as outlined above, far exceeds the sales value of their product.
- Identify and encourage the adaptive reuse of vacant or failing waterfront commercial properties. Consider the use of historic tax credits, Community Development Block Grants, or the use of public or privately generated funds to stabilize such properties or develop new uses.
- Consistent with land use and water quality and environmental considerations, seek out and encourage new waterfront commercial enterprises including such things as aquaculture, maritime museums, boating instruction schools, restaurants accessible to boaters, seafood retail stores, marinas, charter fishing operations, retirement communities, etc. Actively help such water-oriented businesses identify suitable sites for their particular enterprise. The adaptive reuse sites discussed above, as well as our waterfront villages and hamlets, could be prime candidates for locating such new enterprises.
- Increase efforts to identify and develop waterfront public access sites and promote multiple uses for such sites. For example, a public fishing pier in an appropriate location could be opened up for three mornings a week to commercial fishermen, oystermen and crabbers to tie up and sell their catch to the public as a "Waterman's Farmers Market." Canoe and kayak launching public access sites could be linked as part of the County's developing blue water trail system and used for point-to-point scenic paddling gatherings or paddling races.
- Actively educate the public and promote the maritime heritage and waterfront oriented recreational, cultural and business activities of our County. Examples of opportunities for such education and promotion would include our outstanding maritime museums and the picturesque waterfront villages most are located in, Belle Isle State Park and the various recreational opportunities it offers, our marinas and the facilities they provide, boat races and shows, fishing derbies, maritime and seafood festivals, steamboat landing reenactments, tall-ship visits, etc.

Objective III-B:

Protect Farmland and Agricultural Resources

Farming is an important component of the County's economic history. Farmlands provide the "aesthetically pleasing landscape" referred to by many citizens, contribute to the local economy, and also assist with recharging groundwater aquifers. According to a 2017 Census of Agriculture there are a total of 127 Farm Producers in Lancaster County with 80 Farms, 16,238 Acres of farmland, and an average of 203 acres of farmland. These figures represent full-time employment and do not reflect seasonal or migrant labor associated with those industries. The change in employment does not necessarily imply a direct correlation in the reduction of land in agricultural use, but does indicate trends in agriculture-related activity.

Coinciding with the decline in agricultural employment is increased development pressure as people move in, attracted by the County's rural character and easy lifestyle. This has the potential to change the natural landscape. Gradually, undeveloped fields and forests are being developed as housing, stores and offices, and other buildings. This is not to say that development itself is negative. New businesses bring much-needed jobs to the County, and the shops and offices bring more choices and alternatives to residents. Additionally, the ability to make economic use of the land is very important to many in the community who may be "land rich" but "cash poor." In other words, development can bring many benefits and challenges.

The County has two Agricultural Zoning Districts (A-1 and A-2). Lands within these districts comprise a significant portion of the total county land area. As currently specified, the minimum lot size in these districts is 2 acres in the A-1 district and 33,000 square feet (0.75-acre) in the A-2 district. This means that a 100-acre farm in the A-2 district could conceivably be turned into a development with almost 120 homes (it does not equal to 100 acres divided by 33,000 square feet because roads, drainage, landscaping, and other features prevent the construction of homes on the entire site). In reality, the actual number of units will likely be less based on-site suitability constraints such as wetlands, slopes, or other features. It is intended that the uses and density in the A-1 and A-2 districts will be reviewed for consistency with the intent of this plan.

The County also has the Highway Corridor Overlay District (HCOD) which is primarily designed to limit the number of driveways entering certain County roads and provide for some visual buffering of developments from the roadway. In general, the HCOD is a good approach for visually obscuring developments that are in already forested areas, because existing plant material can do a good job of screening the new buildings. However, on open farmland and other cleared areas, the screening may be inadequate or even seem out of character if the remaining portions of the property are all cleared lands.

Fortunately, some of the recent development activity in Lancaster County has focused on areas near existing towns, leaving many of the farmlands intact. However, it is likely that this development momentum could start impacting rural areas as farmers retire and capitalize on the equity in the land. Furthermore, from a development economics standpoint, the attractiveness of farmland due to the flat topography and lower site clearing and preparation costs will only increase development pressure on these areas.

The County recognizes that different key policy approaches are required for farmland preservation versus open space preservation; and that effective farmland preservation and management efforts require a multi-faceted approach with many elements beyond land use policies and regulations.

Virginia Land Use Statutes Addressing Rural Character

The *Code of Virginia* has many statutes devoted specifically to land preservation. The following are some of the key sections that may have particular application in Lancaster County.

Statute	Title	Description
§ 3.1-22.28	Right to Farm	Establishes the right to engage in farming and forestry activity. Protects farmers and loggers from nuisance suits.
Title 10.1	Conservation	This entire title provides the legislation authorizing many forms of rural land conservation programs and agencies.
§10.1-1009 to §10.1-1016	Virginia Conservation Easement Act	This act authorizes the use of conservation easements. It also authorizes the levying of taxes that reflect the restricted usability of the land under the terms of the easement.
§ 10.1-1017 to §10.1-1026	Virginia Land Conservation Foundation	Establishes the Foundation and authorizes it to receive donations of money and land. The Foundation can enter into conservation easement agreements with private landowners as well as purchase land outright.
§10.1-1700 to §10.1-1705	Open Space Land Act	Authorizes public bodies (for example, Lancaster County) to purchase, receive as dedication, or otherwise obtain land for use as open space. This acquisition does not have to be permanent and can last as little as five years. The public body can authorize farming or timbering on the land.
§10.1-1800 to §10.1-1804	Virginia Outdoors Foundation	The Foundation promotes the preservation of open-space lands and encourages private gifts of money, securities, land or other property to preserve the natural, scenic, historic, scientific, open-space and recreational areas of the Commonwealth
§10.1-2100 to §10.1-2116	Chesapeake Bay Preservation Act	Restricts and governs certain land use and development activities in the lands that drain into the Chesapeake Bay. Imposes limits on the amount of land that can be cleared, amounts of impervious cover, and other activities that can affect the receiving watershed.
§15.2-2316.2	TDR Enabling	Authorizes local governments to initiate a Transfer of

	Legislation	Development Rights program.
§15.2-2286.1	Clustering	Authorizes local governments to preserve open space through the use of conservation development standards.

Strategies:

- Review the list of permitted uses in the A-1 and A-2 district for compatibility with the intent of the districts. Modify as necessary.
- Promote the use of conservation easements in the *Rural* character area.
- Require all new development to be buffered from the roadway to minimize the visual impact.
- Explore the development of a County PDR program to purchase development easements on sensitive lands.
- Promote the use of negotiations to promote the conservation of sensitive lands.

Objective III-C:

Preserve, protect, and promote agricultural activities.

There are several programs that have been used successfully throughout the United States, including the Commonwealth of Virginia, that offer a variety of means to manage and preserve farmland and open space. The following strategies will help the County ensure that farming and timbering remain viable alternatives.

Strategies

- Develop a comprehensive farmland and open space protection program with a blend of land use and economic policies and actions.
- Update the inventory of land still in agricultural use as a first step to allow for improved farmland management and development of a comprehensive farmland protection program.
- Direct new residential and commercial development to designated growth areas (see Objective 2A).
- Refine the list of permitted uses within the agricultural areas to limit those uses related to agricultural community activities.
- Adopt a right-to-farm policy statement to allow activities related to farming operations to continue. Provide information about farming practice and its cultural and economic importance in Lancaster County to prospective homebuyers.
    - Expand the Land-use Taxation program.
    - Residential design standards must provide for appropriate transitions and buffering between the residential component and open space areas, agriculture and aquaculture activities, and nearby properties or roadways.
    - Amend the Lancaster County zoning ordinance to ensure that non-agricultural uses do not compromise agricultural and silvicultural uses or lands.

Objective III-D:

Preserve the historic resources and archaeological sites that reflect the County's heritage and historical significance

The County's historic buildings and other resources are an important part of the County's identity and character and should be protected. Chapter 6 of the Plan notes the importance and benefits of historic preservation. It includes a partial listing of the County's historic resources and a policy goal with four objectives for historic preservation. Additional strategies include the following:

Strategies:

- Provide property owners with information on how to have their properties included in the Virginia Landmarks Register or the National Register and how to seek available Federal rehabilitation tax credits.
- Create and maintain a computerized inventory, listing and map of all significant historic, cultural, architectural and archeological sites. The Virginia Department of Resources is a source for technical and financial assistance to local jurisdictions. Include all identified historic, cultural, archeological and architecturally significant sites on a map in the amended Comprehensive Plan.
- Require surveying, identifying and mitigating adverse impacts on proven historic resources as a condition for rezoning and special use permits.
- Encourage voluntary efforts for historic preservation, including donation of preservation easements by property owners.
- Utilize strategies such as brochures with local landmarks, local landmark signs, and driving tours.

Objective III-E:

Preserve open space and views along roads and waterways

County residents desire to retain the views along the County's roadways and waterways and are concerned over the potential impact of any type of development on these views.

Strategies:

- Promote land use practices to preserve the rural character and qualities of the County.

- Encourage low intensity field crop farming as use in reserved open space areas.
- Allow efficient development patterns that prioritize preservation of open space, wooded areas, and other features.
- Discourage commercial and residential sprawl along road corridors.
- Revise the Highway Corridor Overlay District to better protect the rural character and to encourage appropriate development. (The Highway Corridor Overlay District currently applies to Routes 3, 354, and 200).
- Provide incentives to retain stands of trees, open spaces, and other buffer areas. Incentives may include lot size flexibility or site layout flexibility in exchange for increased buffering from the roadway.

IV. RECREATIONAL OPPORTUNITIES - Discussion and Objectives

Lancaster County needs additional recreational facilities and opportunities, including bicycle, pedestrian paths and trails, and designated areas for hunting and fishing.

Goal: Provide a range of recreational facilities and activities to accommodate the needs of all County residents

Policy IV-A:

Develop a comprehensive system of pathways and trails suitable for use by bicyclists, pedestrians, and equestrians

Chapter 6 states the County has adopted a series of Class III (shared with the existing roadway) bikeways which extend throughout the County and includes a related map, *Bicycle Trails of Lancaster County*, with a plan for bikeway improvements. Lancaster County should use this existing Bicycle Trails Plan as the basis for developing a more comprehensive countywide multi-use trail, bicycle and pedestrian system. The system would serve both short-distance trips between neighborhoods and nearby services, and also longer-distance transportation and recreational users.

Strategies:

- Expand upon the Bicycle Trails Plan to develop a comprehensive County-wide Bicycle, Water and Pedestrian Trails Program with a prioritized list of improvements for implementation.

- Inventory and map existing bikeways, sidewalks and trails to determine location and condition as the starting point for the County-wide Bicycle and Pedestrian Trails Program. As of 2022 there is a Tri-Way Trail Proposal in affect and site-plans in place that will connect all 3 Towns, (Kilmarnock, White Stone, and Irvington).
- Include the action steps in Chapter 6 (Section B. Highways, 3. Planned Highway Improvements by VDOT, C. Bicycle Trail) in the Bicycle and Pedestrian Trails Program. Bike paths and sidewalks will be considered in the design of improved and new road projects. Small projects such as painting bike lane stripes on existing roadways with sufficient pavement width, minor grading, gravel compaction, and vegetation trimming will be undertaken as a means of improving safety and utility. Consistent with the plan, additional grant funding will be sought to carry out such larger projects as bridge widening, separate path construction, and shoulder paving.
- Encourage developers to construct bikeways and sidewalks for transportation and recreation purposes.
- Seek the use of utility rights-of-way for bicycle and pedestrian trails.

Policy IV-B:

Develop a Parks and Recreation Program

Chapter 6 identifies existing publicly and privately owned recreational sites and facilities. It also includes a list of standards for a range of recreational facilities including baseball and softball fields, basketball, tennis and swimming pools and notes that these standards "may be adjusted as appropriate for Lancaster County." One way in which the County's population is distinctly different from the rest of the state is its relatively high percentage of residents over the age of 65, estimated to be 36.7% in the 2021 US Census versus 15.5% statewide. That percentage gives Lancaster County the oldest population by county in Virginia and one of the top ten oldest populations by county nationwide. Demographic trends such as these suggest that the County needs to take additional steps to better identify the recreational opportunities that are most appropriate and desired by residents.

Strategies

- Establish a citizen's committee charged with making recommendations for projects and improvements to be included in the Parks and Recreation Master Program with a prioritized list of desired improvements and facilities.
- Conduct an inventory of the current publicly owned and privately owned recreational facilities that are accessible to the public.
- Survey County residents to determine recreational needs and priorities.
- Use the Program as a basis for identifying proffers for development or

redevelopment

- Many citizens identified improved public access to the water as a desired element of recreational opportunities in the County. The 'Public and Private Access to Waterfront Areas Plan' in Chapter 5 includes several goals and objectives to improve public access to water, and should serve as the basis for this element of the County's Parks and Recreation Program.
- Encourage the creation of a Lancaster County Parks and Public Access Sites Committee. Hire a Parks and Recreation Coordinator to facilitate the Parks and Recreation Program.

V. QUALITY HOUSING AND DIVERSE COMMUNITIES - Discussion and Objectives

Lancaster County needs more 'affordable' or 'workforce' housing in the County along with the need for a diverse housing stock. As of the 2021 US Census, July 01, 2021 there were 7,464 Housing Units in Lancaster County. Owner-occupied housing unit rate was 75.8%. The median value of owner-occupied housing units from 2016-2020 was $236,500. There were 48 new Single-Family Building Permits issued in Lancaster County in 2021. The great majority of land in the County is zoned for large lot development (one dwelling unit per three quarters of an acre to two acres). The median household income in the County, an estimated $48,280 in the year 2020, is higher than the US average of $35,384 in the year 2020.

Lancaster County desires to retain its diverse, eclectic housing and communities with a range of housing types and income levels located in close proximity, as an important component of community character. The County will continue to address and reduce substandard housing conditions and deteriorating older housing stock.

Goals:
Provide a range of housing options and types to preserve the diversity of the County's communities and to meet the housing needs of County residents.

Achieve high-quality design, construction and appearance of existing and new residential development and neighborhoods

Policy V-A:

Allow for a range of choice in housing type, design, density and price

Strategies

- Encourage diverse and innovative housing and subdivision design.
- Revise the County's Zoning Ordinance to allow for a variety of housing types with appropriate development standards to ensure compatibility with surrounding development.
- Ensure an adequate supply of land in appropriate locations is provided for medium and *high-density* residential development.
- Encourage infill development in residential areas to minimize development costs and maximize the development potential of land convenient to public facilities and services.
- Review family member transfer standards to ensure regulations are not creating an undue burden on families.
- Coordinate with neighboring jurisdictions to develop a regional approach to housing needs including a regional inventory of housing needs.
- Work with lending institutions, state and federal agencies and private parties to increase affordable home ownership opportunities for both for-sale and rental housing

Policy V-B:

Eliminate substandard housing conditions

Strategies

- Support the efforts of private and nonprofit groups to improve the condition of the County's housing stock.
- Develop an information campaign to educate the public about local, state and federal programs that assist home repair, preventive maintenance and sanitary health conditions. Such programs include the Virginia Housing Development Authority's housing rehabilitation and winterization programs.
- Continue to implement the County's Housing Choice Voucher Program which provides a subsidy to families living in rental property to make it feasible for them to live in decent housing.
- Continue to implement the County's Indoor Plumbing/Rehab Program which provides grants or loans to assist in drilling wells, building septic systems, or installing plumbing systems to new or renovated housing.
- Continue to seek aid from the Federal Emergency Management Administration to elevate homes affected by storms out of flood plain areas to mitigate further damage.

VI. ECONOMIC OPPORTUNITIES - Discussion and Objectives

Lancaster County, while rich in historic, natural and cultural resources, faces problems of unemployment and underemployment. The decline in traditional industries and the

growth in retirement and second home development are changing the landscape of Lancaster County. The 1990 survey of county citizens conducted by the University of Virginia presents some interesting results. Of those polled, 51.3% were retired, 79.5% do not have children living in their household, and 82% think the county should promote itself as a good place to retire. These findings punctuate the growth of the county's retired population that has occurred and continues to occur. This growth trend has had a major impact on the type of employment opportunities that exist. A Situation Analysis Report was created by the Virginia Cooperative Extension in 2018, which showed that 34% of the county population is age 65 or older, while only 15% of the County is under age 19. The median age of residents is 57.

The challenge for Lancaster is to diversify the tax base while maintaining its rural character and excellent quality of life. The county must take appropriate steps to ensure that outside forces do not govern growth. The continuing loss of farm and forestland and the escalating emigration of youth must be dealt with by local government through public policy. Plans must be implemented which will result in the creation of employment opportunities that provide stable economic conditions with the opportunity for high wages, advancement and benefits. Absolutely essential to the creation of any employment opportunities is the provision of high-speed internet service throughout the county. Effective job training and placement programs must be provided for all elements of the population so that ability and opportunity for this local employment can be developed.

The county government should also take meaningful steps to ensure that farming, forestry and water-related employment remain viable economic sectors in the local economy. This is a significant challenge given the advanced age of people currently farming and the reluctance of young people to go into farming. Equally troubling with respect to the seafood industry is the declining population of blue crabs and the low probability that stocks can be replenished while businesses continue to operate.

INVENTORY

Estimates of Lancaster County's population figures indicate a slight decrease in overall population. The 2010 Census showed 11,391 to the 2021 Census which shows 10,928 citizens in Lancaster County.

The type of growth in Lancaster County has changed more than the rate. The total labor force (people employed or unemployed and actively seeking work) in 2010 was 4,682 and in August 2022 shows an employment rate of 5,631. This is important because it indicates that in spite of a small decrease in total population, the number in the labor force and the percentage of the population that is in the labor force is actually increasing. This can likely be attributed to the decrease in population in the ages that are outside the traditional labor pool.

Lancaster County showed improvement in its employment characteristics from an unemployment rate of 9.9% in the year 2010, to 8% in the year 2021**.** Comparative rates

for the U.S. average were 6% in 2021.

In terms of number of people, from 2019 to 2020, high growth employment sectors in Lancaster County are Health Care & Social Assistance, Retail Trade, and Public Administration.

The trends in rate of unemployment in the twenty-year period between 1990 and 2010 are reflected in the income characteristics of the residents of Lancaster County. The average weekly wage in 1990 was $314**.** That increased to $574 in 2010. Statewide, average weekly wages increased from $438 in 1990 to $953 in 2012. Employment in management, professional and related occupations ranked highest in the County with about 27.6% of the workforce, followed by 25.1% in sales and office occupations.

Goal: Expand and diversify the economy within Lancaster County

Policy VI-A:

Support and encourage tourism and the businesses serving this market

Tourism has become an important factor in Lancaster County's economy. Existing new and expanding businesses catering to this market will be supported or recruited by the county. The County government will actively promote these businesses and the area to tourists. The County government will also seek out ways to provide and promote additional events, public services and amenities sought by tourists, especially focusing on the provision of public access to beaches and state waterways.

Strategies:

- Develop promotional materials marketing Lancaster County as a tourist destination.
- Develop and promote tours of Lancaster County for travel agents, travel writers, state and regional officials and tourists.
- Develop a tourism marketing plan.
- Promote tourism education programs designed to train local service industry and retail employees as sales agents for Lancaster County.
- Foster the creation of new tourism related business, events, public services and amenities, especially focusing on the provision of public access to beaches and state waterways.

Policy VI-B:

Ensure that proper and sufficient zoning and land use measures are in place to allow for responsible nonresidential growth

Following the completion of the comprehensive plan update, the County will undertake a review of the zoning ordinances to identify any provisions that negatively impact desired development patterns. The zoning ordinance will be revised to encourage and support appropriate nonresidential growth, while protecting those resources, features and qualities that comprise the local rural character and quality of life.

Strategies:

- Review all zoning ordinances to determine that such measures allow sufficient flexibility to encourage and support nonresidential growth, while protecting those resources, features and qualities that comprise the local rural character and quality of life.

Policy VI-C:

Standardize waterfront land use to ensure that future growth occurs in a planned and orderly manner

County staff will develop a separate zoning classification which addresses traditional commercial and industrial waterfront usage, allows sufficient flexibility for future growth and removes ambiguities attached to limited, special exception and nonconforming uses along Lancaster's shoreline. County government will incorporate all current and future requirements of the Chesapeake Bay Act into existing and planned policies addressing development along the coast. Traditional businesses and occupations will be encouraged in these areas and new employers will be sought which have been identified as requiring proximity to waterways for the conduct of their business.

To adequately prepare for possible changes in rising sea levels, shoreline erosion and coastal subsidence over the next several decades, development should be carefully reviewed and managed to take into account the potential impacts. Where possible, conservation measures should be employed to protect natural communities and prevent investment losses in the future.

Strategies:

- Develop a zoning classification which addresses traditional commercial and industrial waterfront usage, allows sufficient flexibility for future growth and removes ambiguities attached to limited, special exception and nonconforming uses.
- Incorporate all current and future requirements of the Chesapeake Bay Act into existing and proposed policies.
- Consider amending the zoning ordinance to address possible sea level changes and develop appropriate use regulations and development standards such as increased shoreline setbacks.

Policy VI-D:

Develop effective job training and placement programs through cooperation between county government, the public school system, vocational school, Rappahannock Community College and the business community

A closer working relationship between the public and private sectors developed to address job training and placement will improve the match between what is being taught and the needs of employers. This will also provide a forum to enable rapid local response to changing needs, trends and technologies in education and the workplace.

Strategies:

- Recreate a workforce development committee comprised of affected organizations and interests to develop a closer working relationship between the public and private sectors.
- Sponsor events, seminars, courses and curricula designed to improve the match between what is being taught and the needs of employers and to enable rapid local response to changing needs, trends and technologies in education and the workplace.

Policy VI-E:

Support programs encouraging and assisting entrepreneurs to move from employment to ownership in local business

County government will work closely with state, regional and local organizations to

assist small business and to assist entrepreneurs wishing to establish small businesses. The County will encourage retired business people in the community to become involved in these efforts. The County will also closely examine the feasibility of creating a business incubation facility within Lancaster County or proximity.

Strategies:

- Work closely with state, regional and local organizations to assist small business and to assist entrepreneurs wishing to establish small businesses.
- Encourage retired and active business people in the community to utilize their expertise in assisting small businesses and those interested in starting businesses.
- Examine the feasibility of creating a small business incubation facility in Lancaster County or proximity.

Policy VI-F:

Promote and support existing industries, especially those engaged in seafood harvesting and processing, aquaculture, forestry and agriculture

Employment in industries traditional to Lancaster County has declined significantly in the last two decades, while employment in services and retail trade has increased. Efforts will be made to develop the production of specialty and value-added products that can restore these lost employment opportunities. Additionally, working with state and Federal agricultural agencies, action can be taken to improve the viability of the agriculture and seafood industries. Specifically, alternative crops (i.e. "truck farm" type crops) that yield a much higher dollar return per acre planted should be investigated. Other counties in Virginia, primarily near urban areas, realize a dollar return per acre that is more than ten times that of Lancaster farmers. Aquaculture, an industry ideally suited for this area, should be encouraged as well. An adequate supply of labor willing to work for the wages that can be paid will be the limitation in pursuing these efforts.

Strategies:

- Establish local and regional business networks to provide a base of support and cooperation for individual businesses.
- Promote agritourism and aquatourism in Lancaster County
- Coordinate and execute annual Business Appreciation Week events and activities.
- Establish and maintain an existing business and industry visitation program.

- Assist local businesses to develop new markets and to produce value added and specialty products.

Policy VI-G:

Prevent unsightly strip development from occurring along Lancaster County roadways

County government should develop policies and procedures to ensure that rampant, strip development does not occur. Studies should be performed to predict areas where future development is likely to fall into this pattern and expand the Highway Corridor Overlay District along these routes.

Strategies:

- Develop policies and procedures to prevent strip development while accommodating commercial and residential growth.

Economic Challenges

One of the single biggest challenges facing the Lancaster County Government is the expansion and diversification of the economic base within the county. This will have to be done in a manner that preserves the rural character and excellent quality of life historically enjoyed by residents and visitors. By following the guidelines established in this plan, it is hoped that this challenge can be met.

In May 2000, Lancaster County was designated a joint enterprise zone by the State of Virginia. Other counties included in this zone are Northumberland, Richmond and Westmoreland as well as the towns of Kilmarnock and Warsaw. This designation makes available state funds to promote economic development in Lancaster and the other affected counties and towns. Funds will be utilized to provide financial incentives to businesses to locate in Lancaster County.

Planning Process

In addition to land use issues, the County will improve the planning process itself, continually increasing opportunities for public participation in land use decision making and improving the link between the Comprehensive Plan and the Zoning Ordinance. The County will also seek better coordination on land use planning between the County and the three towns.

Plan Implementation

Lancaster County has limited planning resources and staff, and like all other jurisdictions, many demands for public funds. Nevertheless, with public input, the County will

develop an implementation program for the Plan, with short-term, mid-term and long-term priorities. A Plan Advisory Committee should be created and charged with semi-annual or annual progress review and reports on the implementation program.

Lancaster County is fortunate to have a large number of citizens who are committed to ensuring the overall quality of life in the County over the future. The County will utilize this resource by creating various citizen task forces charged with assisting to implement various elements of the Plan.